

SEQUENCE LISTING

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gagggtacag	cagaactta	caattttaaa	gaaacaaaag	caccagaagg	ttatgtaatc	1440
cctgtataaa	aaatcgagt	tgacgtatca	caaacatctt	ataatacaaa	accaactgac	1500
atcacgttg	atagtgtca	tgcaacacct	gataacaattt	aaaacaaca	acgtccctca	1560
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<210> 2

<211> 554

<212> PRT

<213> Streptococcus agalactiae

<400> 2

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1	5	10	15
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Ser Ile Val Arg Ala Ala Glu Val Ser Gln Glu Arg	Pro Ala Lys Thr		
35	40	45	
Thr Val Asn Ile Tyr Lys Leu Gln Ala Asp Ser Tyr	Lys Ser Glu Ile		
50	55	60	
Thr Ser Asn Gly Gly Ile Glu Asn Lys Asp Gly Glu	Val Ile Ser Asn		
65	70	75	80
Tyr Ala Lys Leu Gly Asp Asn Val Lys Gly Leu Gln	Gly Val Gln Phe		
85	90	95	
Lys Arg Tyr Lys Val Lys Thr Asp Ile Ser Val Asp	Glu Leu Lys Lys		
100	105	110	
Leu Thr Thr Val Glu Ala Ala Asp Ala Lys Val	Gly Thr Ile Leu Glu		
115	120	125	
Glu Gly Val Ser Leu Pro Gln Lys Thr Asn Ala Gln	Gly Leu Val Val		
130	135	140	
Asp Ala Leu Asp Ser Lys Ser Asn Val Arg Tyr	Leu Tyr Val Glu Asp		
145	150	155	160
Leu Lys Asn Ser Pro Ser Asn Ile Thr Lys Ala Tyr	Ala Val Pro Phe		
165	170	175	
Val Leu Glu Leu Pro Val Ala Asn Ser Thr Gly	Thr Gly Phe Leu Ser		
180	185	190	190
Glu Ile Asn Ile Tyr Pro Lys Asn Val Val Thr Asp	Glu Pro Lys Thr		
195	200	205	
Asp Lys Asp Val Lys Lys Leu Gly Gln Asp Asp	Ala Gly Tyr Thr Ile		
210	215	220	
Gly Glu Glu Phe Lys Trp Phe Leu Lys Ser	Thr Ile Pro Ala Asn Leu		
225	230	235	240
Gly Asp Tyr Glu Lys Phe Glu Ile Thr Asp Lys	Phe Ala Asp Gly Leu		
245	250	255	
Thr Tyr Lys Ser Val Gly Lys Ile Lys Ile Gly	Ser Lys Thr Leu Asn		
260	265	270	
Arg Asp Glu His Tyr Thr Ile Asp Glu Pro Thr Val	Asp Asn Gln Asn		
275	280	285	
Thr Leu Lys Ile Thr Phe Lys Pro Glu Lys Phe	Lys Glu Ile Ala Glu		
290	295	300	
Leu Leu Lys Gly Met Thr Leu Val Lys Asn Gln Asp	Ala Leu Asp Lys		
305	310	315	320

Ala Thr Ala Asn Thr Asp Asp Ala Ala Phe Leu Glu Ile Pro Val Ala
 325 330 335
 Ser Thr Ile Asn Glu Lys Ala Val Leu Gly Lys Ala Ile Glu Asn Thr
 340 345 350
 Phe Glu Leu Gln Tyr Asp His Thr Pro Asp Lys Ala Asp Asn Pro Lys
 355 360 365
 Pro Ser Asn Pro Pro Arg Lys Pro Glu Val His Thr Gly Gly Lys Arg
 370 375 380
 Phe Val Lys Lys Asp Ser Thr Glu Thr Gln Thr Leu Gly Gly Ala Glu
 385 390 395 400
 Phe Asp Leu Leu Ala Ser Asp Gly Thr Ala Val Lys Trp Thr Asp Ala
 405 410 415
 Leu Ile Lys Ala Asn Thr Asn Lys Asn Tyr Ile Ala Gly Glu Ala Val
 420 425 430
 Thr Gly Gln Pro Ile Lys Leu Lys Ser His Thr Asp Gly Thr Phe Glu
 435 440 445
 Ile Lys Gly Leu Ala Tyr Ala Val Asp Ala Asn Ala Glu Gly Thr Ala
 450 455 460

 Val Thr Tyr Lys Leu Lys Glu Thr Lys Ala Pro Glu Gly Tyr Val Ile
 465 470 475 480
 Pro Asp Lys Glu Ile Glu Phe Thr Val Ser Gln Thr Ser Tyr Asn Thr
 485 490 495

 Lys Pro Thr Asp Ile Thr Val Asp Ser Ala Asp Ala Thr Pro Asp Thr
 500 505 510
 Ile Lys Asn Asn Lys Arg Pro Ser Ile Pro Asn Thr Gly Gly Ile Gly
 515 520 525
 Thr Ala Ile Phe Val Ala Ile Gly Ala Ala Val Met Ala Phe Ala Val
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 Lys Gly Met Lys Arg Arg Thr Lys Asp Asn
 545 550

 <210> 3
 <211> 517
 <212> PRT
 <213> Streptococcus agalactiae

 <400> 3
 Ala Glu Val Ser Gln Glu Arg Pro Ala Lys Thr Thr Val Asn Ile Tyr
 1 5 10 15
 Lys Leu Gln Ala Asp Ser Tyr Lys Ser Glu Ile Thr Ser Asn Gly Gly
 20 25 30
 Ile Glu Asn Lys Asp Gly Glu Val Ile Ser Asn Tyr Ala Lys Leu Gly
 35 40 45
 Asp Asn Val Lys Gly Leu Gln Gly Val Gln Phe Lys Arg Tyr Lys Val
 50 55 60
 Lys Thr Asp Ile Ser Val Asp Glu Leu Lys Lys Leu Thr Thr Val Glu
 65 70 75 80
 Ala Ala Asp Ala Lys Val Gly Thr Ile Leu Glu Glu Gly Val Ser Leu
 85 90 95
 Pro Gln Lys Thr Asn Ala Gln Gly Leu Val Val Asp Ala Leu Asp Ser
 100 105 110
 Lys Ser Asn Val Arg Tyr Leu Tyr Val Glu Asp Leu Lys Asn Ser Pro
 115 120 125

Ser Asn Ile Thr Lys Ala Tyr Ala Val Pro Phe Val Leu Glu Leu Pro
 130 135 140
 Val Ala Asn Ser Thr Gly Thr Gly Phe Leu Ser Glu Ile Asn Ile Tyr
 145 150 155 160
 Pro Lys Asn Val Val Thr Asp Glu Pro Lys Thr Asp Lys Asp Val Lys
 165 170 175
 Lys Leu Gly Gln Asp Asp Ala Gly Tyr Thr Ile Gly Glu Glu Phe Lys
 180 185 190
 Trp Phe Leu Lys Ser Thr Ile Pro Ala Asn Leu Gly Asp Tyr Glu Lys
 195 200 205
 Phe Glu Ile Thr Asp Lys Phe Ala Asp Gly Leu Thr Tyr Lys Ser Val
 210 215 220
 Gly Lys Ile Lys Ile Gly Ser Lys Thr Leu Asn Arg Asp Glu His Tyr
 225 230 235 240
 Thr Ile Asp Glu Pro Thr Val Asp Asn Gln Asn Thr Leu Lys Ile Thr
 245 250 255
 Phe Lys Pro Glu Lys Phe Lys Glu Ile Ala Glu Leu Lys Gly Met
 260 265 270
 Thr Leu Val Lys Asn Gln Asp Ala Leu Asp Lys Ala Thr Ala Asn Thr
 275 280 285
 Asp Asp Ala Ala Phe Leu Glu Ile Pro Val Ala Ser Thr Ile Asn Glu
 290 295 300
 Lys Ala Val Leu Gly Lys Ala Ile Glu Asn Thr Phe Glu Leu Gln Tyr
 305 310 315 320
 Asp His Thr Pro Asp Lys Ala Asp Asn Pro Lys Pro Ser Asn Pro Pro
 325 330 335
 Arg Lys Pro Glu Val His Thr Gly Gly Lys Arg Phe Val Lys Lys Asp
 340 345 350
 Ser Thr Glu Thr Gln Thr Leu Gly Gly Ala Glu Phe Asp Leu Ala
 355 360 365
 Ser Asp Gly Thr Ala Val Lys Trp Thr Asp Ala Leu Ile Lys Ala Asn
 370 375 380
 Thr Asn Lys Asn Tyr Ile Ala Gly Ala Val Thr Gly Gln Pro Ile
 385 390 395 400
 Lys Leu Lys Ser His Thr Asp Gly Thr Phe Glu Ile Lys Gly Leu Ala
 405 410 415
 Tyr Ala Val Asp Ala Asn Ala Glu Gly Thr Ala Val Thr Tyr Lys Leu
 420 425 430
 Lys Glu Thr Lys Ala Pro Glu Gly Tyr Val Ile Pro Asp Lys Glu Ile
 435 440 445
 Glu Phe Thr Val Ser Gln Thr Ser Tyr Asn Thr Lys Pro Thr Asp Ile
 450 455 460
 Thr Val Asp Ser Ala Asp Ala Thr Pro Asp Thr Ile Lys Asn Asn Lys
 465 470 475 480
 Arg Pro Ser Ile Pro Asn Thr Gly Gly Ile Gly Thr Ala Ile Phe Val
 485 490 495
 Ala Ile Gly Ala Ala Val Met Ala Phe Ala Val Lys Gly Met Lys Arg
 500 505 510
 Arg Thr Lys Asp Asn
 515

<210> 4
 <211> 525
 <212> PRT

<213> Streptococcus agalactiae

<400> 4
Met Lys Leu Ser Lys Lys Leu Leu Phe Ser Ala Ala Val Leu Thr Met
1 5 10 15
Val Ala Gly Ser Thr Val Glu Pro Val Ala Gln Phe Ala Thr Gly Met
20 25 30
Ser Ile Val Arg Ala Ala Glu Val Ser Gln Glu Arg Pro Ala Lys Thr
35 40 45
Thr Val Asn Ile Tyr Lys Leu Gln Ala Asp Ser Tyr Lys Ser Glu Ile
50 55 60
Thr Ser Asn Gly Gly Ile Glu Asn Lys Asp Gly Glu Val Ile Ser Asn
65 70 75 80
Tyr Ala Lys Leu Gly Asp Asn Val Lys Gly Leu Gln Gly Val Gln Phe
85 90 95
Lys Arg Tyr Lys Val Lys Thr Asp Ile Ser Val Asp Glu Leu Lys Lys
100 105 110
Leu Thr Thr Val Glu Ala Ala Asp Ala Lys Val Gly Thr Ile Leu Glu
115 120 125
Glu Gly Val Ser Leu Pro Gln Lys Thr Asn Ala Gln Gly Leu Val Val
130 135 140
Asp Ala Leu Asp Ser Lys Ser Asn Val Arg Tyr Leu Tyr Val Glu Asp
145 150 155 160
Leu Lys Asn Ser Pro Ser Asn Ile Thr Lys Ala Tyr Ala Val Pro Phe
165 170 175
Val Leu Glu Leu Pro Val Ala Asn Ser Thr Gly Thr Gly Phe Leu Ser
180 185 190
Glu Ile Asn Ile Tyr Pro Lys Asn Val Val Thr Asp Glu Pro Lys Thr
195 200 205
Asp Lys Asp Val Lys Lys Leu Gly Gln Asp Asp Ala Gly Tyr Thr Ile
210 215 220
Gly Glu Glu Phe Lys Trp Phe Leu Lys Ser Thr Ile Pro Ala Asn Leu
225 230 235 240
Gly Asp Tyr Glu Lys Phe Glu Ile Thr Asp Lys Phe Ala Asp Gly Leu
245 250 255
Thr Tyr Lys Ser Val Gly Lys Ile Lys Ile Gly Ser Lys Thr Leu Asn
260 265 270
Arg Asp Glu His Tyr Thr Ile Asp Glu Pro Thr Val Asp Asn Gln Asn
275 280 285
Thr Leu Lys Ile Thr Phe Lys Pro Glu Lys Phe Lys Glu Ile Ala Glu
290 295 300
Leu Leu Lys Gly Met Thr Leu Val Lys Asn Gln Asp Ala Leu Asp Lys
305 310 315 320
Ala Thr Ala Asn Thr Asp Asp Ala Ala Phe Leu Glu Ile Pro Val Ala
325 330 335
Ser Thr Ile Asn Glu Lys Ala Val Leu Gly Lys Ala Ile Glu Asn Thr
340 345 350
Phe Glu Leu Gln Tyr Asp His Thr Pro Asp Lys Ala Asp Asn Pro Lys
355 360 365
Pro Ser Asn Pro Pro Arg Lys Pro Glu Val His Thr Gly Gly Lys Arg
370 375 380
Phe Val Lys Lys Asp Ser Thr Glu Thr Gln Thr Leu Gly Gly Ala Glu
385 390 395 400
Phe Asp Leu Leu Ala Ser Asp Gly Thr Ala Val Lys Trp Thr Asp Ala
405 410 415
Leu Ile Lys Ala Asn Thr Asn Lys Asn Tyr Ile Ala Gly Glu Ala Val

420	425	430
Thr Gly Gln Pro Ile Lys Leu Lys Ser His Thr Asp Gly Thr Phe Glu		
435	440	445
Ile Lys Gly Leu Ala Tyr Ala Val Asp Ala Asn Ala Glu Gly Thr Ala		
450	455	460
Val Thr Tyr Lys Leu Lys Glu Thr Lys Ala Pro Glu Gly Tyr Val Ile		
465	470	475
Pro Asp Lys Glu Ile Glu Phe Thr Val Ser Gln Thr Ser Tyr Asn Thr		
485	490	495
Lys Pro Thr Asp Ile Thr Val Asp Ser Ala Asp Ala Thr Pro Asp Thr		
500	505	510
Ile Lys Asn Asn Lys Arg Pro Ser Ile Pro Asn Thr Gly		
515	520	525

<210> 5
<211> 5
<212> PRT
<213> Streptococcus agalactiae

<400> 5
Ile Pro Asn Thr Gly
1 5

<210> 6
<211> 520
<212> PRT
<213> Streptococcus agalactiae

<400> 6		
Met Lys Leu Ser Lys Lys Leu Leu Phe Ser Ala Ala Val Leu Thr Met		
1 5 10 15		
Val Ala Gly Ser Thr Val Glu Pro Val Ala Gln Phe Ala Thr Gly Met		
20 25 30		
Ser Ile Val Arg Ala Ala Glu Val Ser Gln Glu Arg Pro Ala Lys Thr		
35 40 45		
Thr Val Asn Ile Tyr Lys Leu Gln Ala Asp Ser Tyr Lys Ser Glu Ile		
50 55 60		
Thr Ser Asn Gly Gly Ile Glu Asn Lys Asp Gly Glu Val Ile Ser Asn		
65 70 75 80		
Tyr Ala Lys Leu Gly Asp Asn Val Lys Gly Leu Gln Gly Val Gln Phe		
85 90 95		
Lys Arg Tyr Lys Val Lys Thr Asp Ile Ser Val Asp Glu Leu Lys Lys		
100 105 110		
Leu Thr Thr Val Glu Ala Ala Asp Ala Lys Val Gly Thr Ile Leu Glu		
115 120 125		
Glu Gly Val Ser Leu Pro Gln Lys Thr Asn Ala Gln Gly Leu Val Val		
130 135 140		
Asp Ala Leu Asp Ser Lys Ser Asn Val Arg Tyr Leu Tyr Val Glu Asp		
145 150 155 160		
Leu Lys Asn Ser Pro Ser Asn Ile Thr Lys Ala Tyr Ala Val Pro Phe		
165 170 175		
Val Leu Glu Leu Pro Val Ala Asn Ser Thr Gly Thr Gly Phe Leu Ser		
180 185 190		
Glu Ile Asn Ile Tyr Pro Lys Asn Val Val Thr Asp Glu Pro Lys Thr		
195 200 205		

Asp Lys Asp Val Lys Leu Gly Gln Asp Asp Ala Gly Tyr Thr Ile
 210 215 220
 Gly Glu Glu Phe Lys Trp Phe Leu Lys Ser Thr Ile Pro Ala Asn Leu
 225 230 235 240
 Gly Asp Tyr Glu Lys Phe Glu Ile Thr Asp Lys Phe Ala Asp Gly Leu
 245 250 255
 Thr Tyr Lys Ser Val Gly Lys Ile Lys Ile Gly Ser Lys Thr Leu Asn
 260 265 270
 Arg Asp Glu His Tyr Thr Ile Asp Glu Pro Thr Val Asp Asn Gln Asn
 275 280 285
 Thr Leu Lys Ile Thr Phe Lys Pro Glu Lys Phe Lys Glu Ile Ala Glu
 290 295 300
 Leu Leu Lys Gly Met Thr Leu Val Lys Asn Gln Asp Ala Leu Asp Lys
 305 310 315 320
 Ala Thr Ala Asn Thr Asp Asp Ala Ala Phe Leu Glu Ile Pro Val Ala
 325 330 335
 Ser Thr Ile Asn Glu Lys Ala Val Leu Gly Lys Ala Ile Glu Asn Thr
 340 345 350
 Phe Glu Leu Gln Tyr Asp His Thr Pro Asp Lys Ala Asp Asn Pro Lys
 355 360 365
 Pro Ser Asn Pro Pro Arg Lys Pro Glu Val His Thr Gly Gly Lys Arg
 370 375 380
 Phe Val Lys Lys Asp Ser Thr Glu Thr Gln Thr Leu Gly Gly Ala Glu
 385 390 395 400
 Phe Asp Leu Leu Ala Ser Asp Gly Thr Ala Val Lys Trp Thr Asp Ala
 405 410 415
 Leu Ile Lys Ala Asn Thr Asn Lys Asn Tyr Ile Ala Gly Glu Ala Val
 420 425 430
 Thr Gly Gln Pro Ile Lys Leu Lys Ser His Thr Asp Gly Thr Phe Glu
 435 440 445
 Ile Lys Gly Leu Ala Tyr Ala Val Asp Ala Asn Ala Glu Gly Thr Ala
 450 455 460
 Val Thr Tyr Lys Leu Lys Glu Thr Lys Ala Pro Glu Gly Tyr Val Ile
 465 470 475 480
 Pro Asp Lys Glu Ile Glu Phe Thr Val Ser Gln Thr Ser Tyr Asn Thr
 485 490 495
 Lys Pro Thr Asp Ile Thr Val Asp Ser Ala Asp Ala Thr Pro Asp Thr
 500 505 510
 Ile Lys Asn Asn Lys Arg Pro Ser
 515 520

<210> 7
 <211> 483
 <212> PRT
 <213> Streptococcus agalactiae

<400> 7
 Ala Glu Val Ser Gln Glu Arg Pro Ala Lys Thr Thr Val Asn Ile Tyr
 1 5 10 15
 Lys Leu Gln Ala Asp Ser Tyr Lys Ser Glu Ile Thr Ser Asn Gly Gly
 20 25 30
 Ile Glu Asn Lys Asp Gly Glu Val Ile Ser Asn Tyr Ala Lys Leu Gly
 35 40 45
 Asp Asn Val Lys Gly Leu Gln Gly Val Gln Phe Lys Arg Tyr Lys Val
 50 55 60

Lys Thr Asp Ile Ser Val Asp Glu Leu Lys Leu Thr Thr Val Glu
 65 70 75 80
 Ala Ala Asp Ala Lys Val Gly Thr Ile Leu Glu Glu Gly Val Ser Leu
 85 90 95
 Pro Gln Lys Thr Asn Ala Gln Gly Leu Val Val Asp Ala Leu Asp Ser
 100 105 110
 Lys Ser Asn Val Arg Tyr Leu Tyr Val Glu Asp Leu Lys Asn Ser Pro
 115 120 125
 Ser Asn Ile Thr Lys Ala Tyr Ala Val Pro Phe Val Leu Glu Leu Pro
 130 135 140
 Val Ala Asn Ser Thr Gly Thr Gly Phe Leu Ser Glu Ile Asn Ile Tyr
 145 150 155 160
 Pro Lys Asn Val Val Thr Asp Glu Pro Lys Thr Asp Lys Asp Val Lys
 165 170 175
 Lys Leu Gly Gln Asp Asp Ala Gly Tyr Thr Ile Gly Glu Glu Phe Lys
 180 185 190
 Trp Phe Leu Lys Ser Thr Ile Pro Ala Asn Leu Gly Asp Tyr Glu Lys
 195 200 205
 Phe Glu Ile Thr Asp Lys Phe Ala Asp Gly Leu Thr Tyr Lys Ser Val
 210 215 220
 Gly Lys Ile Lys Ile Gly Ser Lys Thr Leu Asn Arg Asp Glu His Tyr
 225 230 235 240
 Thr Ile Asp Glu Pro Thr Val Asp Asn Gln Asn Thr Leu Lys Ile Thr
 245 250 255
 Phe Lys Pro Glu Phe Lys Glu Ile Ala Glu Leu Leu Lys Gly Met
 260 265 270
 Thr Leu Val Lys Asn Gln Asp Ala Leu Asp Lys Ala Thr Ala Asn Thr
 275 280 285
 Asp Asp Ala Ala Phe Leu Glu Ile Pro Val Ala Ser Thr Ile Asn Glu
 290 295 300
 Lys Ala Val Leu Gly Lys Ala Ile Glu Asn Thr Phe Glu Leu Gln Tyr
 305 310 315 320
 Asp His Thr Pro Asp Lys Ala Asp Asn Pro Lys Pro Ser Asn Pro Pro
 325 330 335
 Arg Lys Pro Glu Val His Thr Gly Gly Lys Arg Phe Val Lys Lys Asp
 340 345 350
 Ser Thr Glu Thr Gln Thr Leu Gly Gly Ala Glu Phe Asp Leu Leu Ala
 355 360 365
 Ser Asp Gly Thr Ala Val Lys Trp Thr Asp Ala Leu Ile Lys Ala Asn
 370 375 380
 Thr Asn Lys Asn Tyr Ile Ala Gly Glu Ala Val Thr Gly Gln Pro Ile
 385 390 395 400
 Lys Leu Lys Ser His Thr Asp Gly Thr Phe Glu Ile Lys Gly Leu Ala
 405 410 415
 Tyr Ala Val Asp Ala Asn Ala Glu Gly Thr Ala Val Thr Tyr Lys Leu
 420 425 430
 Lys Glu Thr Lys Ala Pro Glu Gly Tyr Val Ile Pro Asp Lys Glu Ile
 435 440 445
 Glu Phe Thr Val Ser Gln Thr Ser Tyr Asn Thr Lys Pro Thr Asp Ile
 450 455 460
 Thr Val Asp Ser Ala Asp Ala Thr Pro Asp Thr Ile Lys Asn Asn Lys
 465 470 475 480
 Arg Pro Ser

<210> 8
<211> 271
<212> PRT
<213> Streptococcus agalactiae

<400> 8
Ala Glu Val Ser Gln Glu Arg Pro Ala Lys Thr Thr Val Asn Ile Tyr
1 5 10 15
Lys Leu Gln Ala Asp Ser Tyr Lys Ser Glu Ile Thr Ser Asn Gly Gly
20 25 30
Ile Glu Asn Lys Asp Gly Glu Val Ile Ser Asn Tyr Ala Lys Leu Gly
35 40 45
Asp Asn Val Lys Gly Leu Gln Gly Val Gln Phe Lys Arg Tyr Lys Val
50 55 60
Lys Thr Asp Ile Ser Val Asp Glu Leu Lys Lys Leu Thr Thr Val Glu
65 70 75 80
Ala Ala Asp Ala Lys Val Gly Thr Ile Leu Glu Gly Val Ser Leu
85 90 95
Pro Gln Lys Thr Asn Ala Gln Gly Leu Val Val Asp Ala Leu Asp Ser
100 105 110
Lys Ser Asn Val Arg Tyr Leu Tyr Val Glu Asp Leu Lys Asn Ser Pro
115 120 125
Ser Asn Ile Thr Lys Ala Tyr Ala Val Pro Phe Val Leu Glu Leu Pro
130 135 140
Val Ala Asn Ser Thr Gly Thr Gly Phe Leu Ser Glu Ile Asn Ile Tyr
145 150 155 160
Pro Lys Asn Val Val Thr Asp Glu Pro Lys Thr Asp Lys Asp Val Lys
165 170 175
Lys Leu Gly Gln Asp Asp Ala Gly Tyr Thr Ile Gly Glu Glu Phe Lys
180 185 190
Trp Phe Leu Lys Ser Thr Ile Pro Ala Asn Leu Gly Asp Tyr Glu Lys
195 200 205
Phe Glu Ile Thr Asp Lys Phe Ala Asp Gly Leu Thr Tyr Lys Ser Val
210 215 220
Gly Lys Ile Lys Ile Gly Ser Lys Thr Leu Asn Arg Asp Glu His Tyr
225 230 235 240
Thr Ile Asp Glu Pro Thr Val Asp Asn Gln Asn Thr Leu Lys Ile Thr
245 250 255
Phe Lys Pro Glu Lys Phe Lys Glu Ile Ala Glu Leu Leu Lys Gly
260 265 270

<210> 9
<211> 212
<212> PRT
<213> Streptococcus agalactiae

<400> 9
Met Thr Leu Val Lys Asn Gln Asp Ala Leu Asp Lys Ala Thr Ala Asn
1 5 10 15
Thr Asp Asp Ala Ala Phe Leu Glu Ile Pro Val Ala Ser Thr Ile Asn
20 25 30
Glu Lys Ala Val Leu Gly Lys Ala Ile Glu Asn Thr Phe Glu Leu Gln
35 40 45
Tyr Asp His Thr Pro Asp Lys Ala Asp Asn Pro Lys Pro Ser Asn Pro

50	55	60	
Pro Arg Lys Pro Glu Val His Thr Gly Gly Lys Arg Phe Val Lys Lys			
65	70	75	80
Asp Ser Thr Glu Thr Gln Thr Leu Gly Gly Ala Glu Phe Asp Leu Leu			
85	90	95	
Ala Ser Asp Gly Thr Ala Val Lys Trp Thr Asp Ala Leu Ile Lys Ala			
100	105	110	
Asn Thr Asn Lys Asn Tyr Ile Ala Gly Glu Ala Val Thr Gly Gln Pro			
115	120	125	
Ile Lys Leu Lys Ser His Thr Asp Gly Thr Phe Glu Ile Lys Gly Leu			
130	135	140	
Ala Tyr Ala Val Asp Ala Asn Ala Glu Gly Thr Ala Val Thr Tyr Lys			
145	150	155	160
Leu Lys Glu Thr Lys Ala Pro Glu Gly Tyr Val Ile Pro Asp Lys Glu			
165	170	175	
Ile Glu Phe Thr Val Ser Gln Thr Ser Tyr Asn Thr Lys Pro Thr Asp			
180	185	190	
Ile Thr Val Asp Ser Ala Asp Ala Thr Pro Asp Thr Ile Lys Asn Asn			
195	200	205	
Lys Arg Pro Ser			
210			

<210> 10
<211> 1629
<212> DNA
<213> Streu

<210> 11

<211> 543

<212> PRT

<213> Streptococcus agalactiae

<400> 11

Met Lys Lys Gly Gln Val Asn Asp Thr Lys Gln Ser Tyr Ser Leu Arg
1 5 10 15
Lys Tyr Lys Phe Gly Leu Ala Ser Val Ile Leu Gly Ser Phe Ile Met
20 25 30
Val Thr Ser Pro Val Phe Ala Asp Gln Thr Thr Ser Val Gln Val Asn
35 40 45
Asn Gln Thr Gly Thr Ser Val Asp Ala Asn Asn Ser Ser Asn Glu Thr
50 55 60
Ser Ala Ser Ser Val Ile Thr Ser Asn Asn Asp Ser Val Gln Ala Ser
65 70 75 80
Asp Lys Val Val Asn Ser Gln Asn Thr Ala Thr Lys Asp Ile Thr Thr
85 90 95
Pro Leu Val Glu Thr Lys Pro Met Val Glu Lys Thr Leu Pro Glu Gln
100 105 110
Gly Asn Tyr Val Tyr Ser Lys Glu Thr Glu Val Lys Asn Thr Pro Ser
115 120 125
Lys Ser Ala Pro Val Ala Phe Tyr Ala Lys Lys Gly Asp Lys Val Phe
130 135 140
Tyr Asp Gln Val Phe Asn Lys Asp Asn Val Lys Trp Ile Ser Tyr Lys
145 150 155 160
Ser Phe Cys Gly Val Arg Arg Tyr Ala Ala Ile Glu Ser Leu Asp Pro
165 170 175
Ser Gly Gly Ser Glu Thr Lys Ala Pro Thr Pro Val Thr Asn Ser Gly
180 185 190
Ser Asn Asn Gln Glu Lys Ile Ala Thr Gln Gly Asn Tyr Thr Phe Ser
195 200 205
His Lys Val Glu Val Lys Asn Glu Ala Lys Val Ala Ser Pro Thr Gln
210 215 220
Phe Thr Leu Asp Lys Gly Asp Arg Ile Phe Tyr Asp Gln Ile Leu Thr
225 230 235 240
Ile Glu Gly Asn Gln Trp Leu Ser Tyr Lys Ser Phe Asn Gly Val Arg
245 250 255
Arg Phe Val Leu Leu Gly Lys Ala Ser Ser Val Glu Lys Thr Glu Asp
260 265 270
Lys Glu Lys Val Ser Pro Gln Pro Gln Ala Arg Ile Thr Lys Thr Gly
275 280 285
Arg Leu Thr Ile Ser Asn Glu Thr Thr Gly Phe Asp Ile Leu Ile
290 295 300
Thr Asn Ile Lys Asp Asp Asn Gly Ile Ala Ala Val Lys Val Pro Val
305 310 315 320
Trp Thr Glu Gln Gly Gly Gln Asp Asp Ile Lys Trp Tyr Thr Ala Val
325 330 335
Thr Thr Gly Asp Gly Asn Tyr Lys Val Ala Val Ser Phe Ala Asp His
340 345 350
Lys Asn Glu Lys Gly Leu Tyr Asn Ile His Leu Tyr Tyr Gln Glu Ala
355 360 365
Ser Gly Thr Leu Val Gly Val Thr Gly Thr Lys Val Thr Val Ala Gly

370	375	380		
Thr Asn Ser Ser Gln Glu Pro Ile Glu Asn Gly Leu Ala Lys Thr Gly				
385	390	395	400	
Val Tyr Asn Ile Ile Gly Ser Thr Glu Val Lys Asn Glu Ala Lys Ile				
	405	410	415	
Ser Ser Gln Thr Gln Phe Thr Leu Glu Lys Gly Asp Lys Ile Asn Tyr				
	420	425	430	
Asp Gln Val Leu Thr Ala Asp Gly Tyr Gln Trp Ile Ser Tyr Lys Ser				
	435	440	445	
Tyr Ser Gly Val Arg Arg Tyr Ile Pro Val Lys Lys Leu Thr Thr Ser				
	450	455	460	
Ser Glu Lys Ala Lys Asp Glu Ala Thr Lys Pro Thr Ser Tyr Pro Asn				
	465	470	475	480
Leu Pro Lys Thr Gly Thr Tyr Thr Phe Thr Lys Pro Val Asp Val Lys				
	485	490	495	
Ser Gln Pro Lys Val Ser Ser Pro Val Glu Phe Asn Phe Gln Lys Gly				
	500	505	510	
Glu Lys Ile His Tyr Asp Gln Val Leu Val Val Asp Gly His Gln Trp				
	515	520	525	
Ile Ser Tyr Lys Ser Tyr Ser Gly Ile Arg Arg Tyr Ile Glu Ile				
	530	535	540	

<210> 12

<211> 504

<212> PRT

<213> Streptococcus agalactiae

<400> 12

Asp Gln Thr Thr Ser Val Gln Val Asn Asn Gln Thr Gly Thr Ser Val				
1	5	10	15	
Asp Ala Asn Asn Ser Ser Asn Glu Thr Ser Ala Ser Ser Val Ile Thr				
	20	25	30	
Ser Asn Asn Asp Ser Val Gln Ala Ser Asp Lys Val Val Asn Ser Gln				
	35	40	45	
Asn Thr Ala Thr Lys Asp Ile Thr Thr Pro Leu Val Glu Thr Lys Pro				
	50	55	60	
Met Val Glu Lys Thr Leu Pro Glu Gln Gly Asn Tyr Val Tyr Ser Lys				
	65	70	75	80
Glu Thr Glu Val Lys Asn Thr Pro Ser Lys Ser Ala Pro Val Ala Phe				
	85	90	95	
Tyr Ala Lys Lys Gly Asp Lys Val Phe Tyr Asp Gln Val Phe Asn Lys				
	100	105	110	
Asp Asn Val Lys Trp Ile Ser Tyr Lys Ser Phe Cys Gly Val Arg Arg				
	115	120	125	
Tyr Ala Ala Ile Glu Ser Leu Asp Pro Ser Gly Gly Ser Glu Thr Lys				
	130	135	140	
Ala Pro Thr Pro Val Thr Asn Ser Gly Ser Asn Asn Gln Glu Lys Ile				
	145	150	155	160
Ala Thr Gln Gly Asn Tyr Thr Phe Ser His Lys Val Glu Val Lys Asn				
	165	170	175	
Glu Ala Lys Val Ala Ser Pro Thr Gln Phe Thr Leu Asp Lys Gly Asp				
	180	185	190	
Arg Ile Phe Tyr Asp Gln Ile Leu Thr Ile Glu Gly Asn Gln Trp Leu				
	195	200	205	
Ser Tyr Lys Ser Phe Asn Gly Val Arg Arg Phe Val Leu Leu Gly Lys				

210	215	220
Ala Ser Ser Val Glu Lys Thr Glu Asp Lys Glu Lys Val Ser Pro Gln		
225	230	235
Pro Gln Ala Arg Ile Thr Lys Thr Gly Arg Leu Thr Ile Ser Asn Glu		240
245	250	255
Thr Thr Thr Gly Phe Asp Ile Leu Ile Thr Asn Ile Lys Asp Asp Asn		
260	265	270
Gly Ile Ala Ala Val Lys Val Pro Val Trp Thr Glu Gln Gly Gly Gln		
275	280	285
Asp Asp Ile Lys Trp Tyr Thr Ala Val Thr Thr Gly Asp Gly Asn Tyr		
290	295	300
Lys Val Ala Val Ser Phe Ala Asp His Lys Asn Glu Lys Gly Leu Tyr		
305	310	315
Asn Ile His Leu Tyr Tyr Gln Glu Ala Ser Gly Thr Leu Val Gly Val		
325	330	335
Thr Gly Thr Lys Val Thr Val Ala Gly Thr Asn Ser Ser Gln Glu Pro		
340	345	350
Ile Glu Asn Gly Leu Ala Lys Thr Gly Val Tyr Asn Ile Ile Gly Ser		
355	360	365
Thr Glu Val Lys Asn Glu Ala Lys Ile Ser Ser Gln Thr Gln Phe Thr		
370	375	380
Leu Glu Lys Gly Asp Lys Ile Asn Tyr Asp Gln Val Leu Thr Ala Asp		
385	390	395
Gly Tyr Gln Trp Ile Ser Tyr Lys Ser Tyr Ser Gly Val Arg Arg Tyr		
405	410	415
Ile Pro Val Lys Lys Leu Thr Thr Ser Ser Glu Lys Ala Lys Asp Glu		
420	425	430
Ala Thr Lys Pro Thr Ser Tyr Pro Asn Leu Pro Lys Thr Gly Thr Tyr		
435	440	445
Thr Phe Thr Lys Thr Val Asp Val Lys Ser Gln Pro Lys Val Ser Ser		
450	455	460
Pro Val Glu Phe Asn Phe Gln Lys Gly Glu Lys Ile His Tyr Asp Gln		
465	470	475
Val Leu Val Val Asp Gly His Gln Trp Ile Ser Tyr Lys Ser Tyr Ser		
485	490	495
Gly Ile Arg Arg Tyr Ile Glu Ile		
500		

<210> 13

<211> 485

<212> PRT

<213> Streptococcus agalactiae

<400> 13

Met Lys Lys Gly Gln Val Asn Asp Thr Lys Gln Ser Tyr Ser Leu Arg		
1	5	10
Lys Tyr Lys Phe Gly Leu Ala Ser Val Ile Leu Gly Ser Phe Ile Met		
20	25	30
Val Thr Ser Pro Val Phe Ala Asp Gln Thr Thr Ser Val Gln Val Asn		
35	40	45
Asn Gln Thr Gly Thr Ser Val Asp Ala Asn Asn Ser Ser Asn Glu Thr		
50	55	60
Ser Ala Ser Ser Val Ile Thr Ser Asn Asn Asp Ser Val Gln Ala Ser		
65	70	75
Asp Lys Val Val Asn Ser Gln Asn Thr Ala Thr Lys Asp Ile Thr Thr		80

85	90	95
Pro Leu Val Glu Thr Lys Pro Met Val Glu Lys Thr Leu Pro Glu Gln		
100	105	110
Gly Asn Tyr Val Tyr Ser Lys Glu Thr Glu Val Lys Asn Thr Pro Ser		
115	120	125
Lys Ser Ala Pro Val Ala Phe Tyr Ala Lys Lys Gly Asp Lys Val Phe		
130	135	140
Tyr Asp Gln Val Phe Asn Lys Asp Asn Val Lys Trp Ile Ser Tyr Lys		
145	150	155
Ser Phe Cys Gly Val Arg Arg Tyr Ala Ala Ile Glu Ser Leu Asp Pro		
165	170	175
Ser Gly Gly Ser Glu Thr Lys Ala Pro Thr Pro Val Thr Asn Ser Gly		
180	185	190
Ser Asn Asn Gln Glu Lys Ile Ala Thr Gln Gly Asn Tyr Thr Phe Ser		
195	200	205
His Lys Val Glu Val Lys Asn Glu Ala Lys Val Ala Ser Pro Thr Gln		
210	215	220
Phe Thr Leu Asp Lys Gly Asp Arg Ile Phe Tyr Asp Gln Ile Leu Thr		
225	230	235
Ile Glu Gly Asn Gln Trp Leu Ser Tyr Lys Ser Phe Asn Gly Val Arg		
245	250	255
Arg Phe Val Leu Leu Gly Lys Ala Ser Ser Val Glu Lys Thr Glu Asp		
260	265	270
Lys Glu Lys Val Ser Pro Gln Pro Gln Ala Arg Ile Thr Lys Thr Gly		
275	280	285
Arg Leu Thr Ile Ser Asn Glu Thr Thr Gly Phe Asp Ile Leu Ile		
290	295	300
Thr Asn Ile Lys Asp Asp Asn Gly Ile Ala Ala Val Lys Val Pro Val		
305	310	315
Trp Thr Glu Gln Gly Gly Gln Asp Asp Ile Lys Trp Tyr Thr Ala Val		
325	330	335
Thr Thr Gly Asp Gly Asn Tyr Lys Val Ala Val Ser Phe Ala Asp His		
340	345	350
Lys Asn Glu Lys Gly Leu Tyr Asn Ile His Leu Tyr Tyr Gln Glu Ala		
355	360	365
Ser Gly Thr Leu Val Gln Val Thr Gly Thr Lys Val Thr Val Ala Gly		
370	375	380
Thr Asn Ser Ser Gln Glu Pro Ile Glu Asn Gly Leu Ala Lys Thr Gly		
385	390	395
Val Tyr Asn Ile Ile Gly Ser Thr Glu Val Lys Asn Glu Ala Lys Ile		
405	410	415
Ser Ser Gln Thr Gln Phe Thr Leu Glu Lys Gly Asp Lys Ile Asn Tyr		
420	425	430
Asp Gln Val Leu Thr Ala Asp Gly Tyr Gln Trp Ile Ser Tyr Lys Ser		
435	440	445
Tyr Ser Gly Val Arg Arg Tyr Ile Pro Val Lys Lys Leu Thr Thr Ser		
450	455	460
Ser Glu Lys Ala Lys Asp Glu Ala Thr Lys Pro Thr Ser Tyr Pro Asn		
465	470	475
Leu Pro Lys Thr Gly		
485		

<210> 14

<211> 5

<212> PRT

<213> Streptococcus agalactiae

<400> 14

Leu Thr Lys Thr Gly
1 5

<210> 15

<211> 480

<212> PRT

<213> Streptococcus agalactiae

<400> 15

Met Lys Lys Gly Gln Val Asn Asp Thr Lys Gln Ser Tyr Ser Leu Arg
1 5 10 15
Lys Tyr Lys Phe Gly Leu Ala Ser Val Ile Leu Gly Ser Phe Ile Met
20 25 30
Val Thr Ser Pro Val Phe Ala Asp Gln Thr Thr Ser Val Gln Val Asn
35 40 45
Asn Gln Thr Gly Thr Ser Val Asp Ala Asn Asn Ser Ser Asn Glu Thr
50 55 60
Ser Ala Ser Ser Val Ile Thr Ser Asn Asn Asp Ser Val Gln Ala Ser
65 70 75 80
Asp Lys Val Val Asn Ser Gln Asn Thr Ala Thr Lys Asp Ile Thr Thr
85 90 95
Pro Leu Val Glu Thr Lys Pro Met Val Glu Lys Thr Leu Pro Glu Gln
100 105 110
Gly Asn Tyr Val Tyr Ser Lys Glu Thr Glu Val Lys Asn Thr Pro Ser
115 120 125
Lys Ser Ala Pro Val Ala Phe Tyr Ala Lys Lys Gly Asp Lys Val Phe
130 135 140
Tyr Asp Gln Val Phe Asn Lys Asp Asn Val Lys Trp Ile Ser Tyr Lys
145 150 155 160
Ser Phe Cys Gly Val Arg Arg Tyr Ala Ala Ile Glu Ser Leu Asp Pro
165 170 175
Ser Gly Gly Ser Glu Thr Lys Ala Pro Thr Pro Val Thr Asn Ser Gly
180 185 190
Ser Asn Asn Gln Glu Lys Ile Ala Thr Gln Gly Asn Tyr Thr Phe Ser
195 200 205
His Lys Val Glu Val Lys Asn Glu Ala Lys Val Ala Ser Pro Thr Gln
210 215 220
Phe Thr Leu Asp Lys Gly Asp Arg Ile Phe Tyr Asp Gln Ile Leu Thr
225 230 235 240
Ile Glu Gly Asn Gln Trp Leu Ser Tyr Lys Ser Phe Asn Gly Val Arg
245 250 255
Arg Phe Val Leu Leu Gly Lys Ala Ser Ser Val Glu Lys Thr Glu Asp
260 265 270
Lys Glu Lys Val Ser Pro Gln Pro Gln Ala Arg Ile Thr Lys Thr Gly
275 280 285
Arg Leu Thr Ile Ser Asn Glu Thr Thr Gly Phe Asp Ile Leu Ile
290 295 300
Thr Asn Ile Lys Asp Asp Asn Gly Ile Ala Ala Val Lys Val Pro Val
305 310 315 320
Trp Thr Glu Gln Gly Gln Asp Asp Ile Lys Trp Tyr Thr Ala Val
325 330 335
Thr Thr Gly Asp Gly Asn Tyr Lys Val Ala Val Ser Phe Ala Asp His

	340	345	350
Lys Asn Glu	Lys Gly Leu Tyr	Asn Ile His Leu Tyr	Tyr Gln Glu Ala
355	360	365	
Ser Gly Thr	Leu Val Gly Val	Thr Gly Thr Lys Val	Thr Val Ala Gly
370	375	380	
Thr Asn Ser	Ser Gln Glu Pro Ile	Glu Asn Gly Leu Ala Lys	Thr Gly
385	390	395	400
Val Tyr Asn Ile	Ile Gly Ser Thr Glu Val	Lys Asn Glu Ala Lys Ile	
405	410	415	
Ser Ser Gln	Thr Gln Phe Thr	Leu Glu Lys Gly Asp Lys Ile	Asn Tyr
420	425	430	
Asp Gln Val	Leu Thr Ala Asp Gly	Tyr Gln Trp Ile Ser Tyr	Lys Ser
435	440	445	
Tyr Ser Gly Val	Arg Arg Tyr Ile Pro Val	Lys Lys Leu Thr Thr Ser	
450	455	460	
Ser Glu Lys Ala Lys	Asp Glu Ala Thr Lys	Pro Thr Ser Tyr Pro Asn	
465	470	475	480

<210> 16
<211> 446
<212> PRT
<213> Streptococcus agalactiae

<400> 16			
Asp Gln Thr Thr Ser Val Gln Val Asn Asn Gln	Thr Gly Thr Ser Val		
1	5	10	15
Asp Ala Asn Asn Ser Ser Asn Glu	Thr Ser Ala Ser Ser Val Ile Thr		
20	25	30	
Ser Asn Asn Asp Ser Val Gln Ala Ser Asp Lys Val Val Asn Ser Gln			
35	40	45	
Asn Thr Ala Thr Lys Asp Ile Thr Thr Pro Leu Val Glu Thr Lys Pro			
50	55	60	
Met Val Glu Lys Thr Leu Pro Glu Gln Gly Asn Tyr Val Tyr Ser Lys			
65	70	75	80
Glu Thr Glu Val Lys Asn Thr Pro Ser Lys Ser Ala Pro Val Ala Phe			
	85	90	95
Tyr Ala Lys Lys Gly Asp Lys Val Phe Tyr Asp Gln Val Phe Asn Lys			
100	105	110	
Asp Asn Val Lys Trp Ile Ser Tyr Lys Ser Phe Cys Gly Val Arg Arg			
115	120	125	
Tyr Ala Ala Ile Glu Ser Leu Asp Pro Ser Gly Gly Ser Glu Thr Lys			
130	135	140	
Ala Pro Thr Pro Val Thr Asn Ser Gly Ser Asn Asn Gln Glu Lys Ile			
145	150	155	160
Ala Thr Gln Gly Asn Tyr Thr Phe Ser His Lys Val Glu Val Lys Asn			
165	170	175	
Glu Ala Lys Val Ala Ser Pro Thr Gln Phe Thr Leu Asp Lys Gly Asp			
180	185	190	
Arg Ile Phe Tyr Asp Gln Ile Leu Thr Ile Glu Gly Asn Gln Trp Leu			
195	200	205	
Ser Tyr Lys Ser Phe Asn Gly Val Arg Arg Phe Val Leu Leu Gly Lys			
210	215	220	

Ala Ser Ser Val Glu Lys Thr Glu Asp Lys Glu Lys Val Ser Pro Gln

225	230	235	240
Pro Gln Ala Arg Ile Thr Lys Thr Gly Arg Leu Thr Ile Ser Asn Glu			
245	250	255	
Thr Thr Thr Gly Phe Asp Ile Leu Ile Thr Asn Ile Lys Asp Asp Asn			
260	265	270	
Gly Ile Ala Ala Val Lys Val Pro Val Trp Thr Glu Gln Gly Gly Gln			
275	280	285	
Asp Asp Ile Lys Trp Tyr Thr Ala Val Thr Thr Gly Asp Gly Asn Tyr			
290	295	300	
Lys Val Ala Val Ser Phe Ala Asp His Lys Asn Glu Lys Gly Leu Tyr			
305	310	315	320
Asn Ile His Leu Tyr Tyr Gln Glu Ala Ser Gly Thr Leu Val Gly Val			
325	330	335	
Thr Gly Thr Lys Val Thr Val Ala Gly Thr Asn Ser Ser Gln Glu Pro			
340	345	350	
Ile Glu Asn Gly Leu Ala Lys Thr Gly Val Tyr Asn Ile Ile Gly Ser			
355	360	365	
Thr Glu Val Lys Asn Glu Ala Lys Ile Ser Ser Gln Thr Gln Phe Thr			
370	375	380	
Leu Glu Lys Gly Asp Lys Ile Asn Tyr Asp Gln Val Leu Thr Ala Asp			
385	390	395	400
Gly Tyr Gln Trp Ile Ser Tyr Lys Ser Tyr Ser Gly Val Arg Arg Tyr			
405	410	415	
Ile Pro Val Lys Lys Leu Thr Thr Ser Ser Glu Lys Ala Lys Asp Glu			
420	425	430	
Ala Thr Lys Pro Thr Ser Tyr Pro Asn Leu Pro Lys Thr Gly			
435	440	445	

<210> 17

<211> 441

<212> PRT

<213> Streptococcus agalactiae

<400> 17

Asp Gln Thr Thr Ser Val Gln Val Asn Asn Gln Thr Gly Thr Ser Val			
1	5	10	15
Asp Ala Asn Asn Ser Ser Asn Glu Thr Ser Ala Ser Ser Val Ile Thr			
20	25	30	
Ser Asn Asn Asp Ser Val Gln Ala Ser Asp Lys Val Val Asn Ser Gln			
35	40	45	
Asn Thr Ala Thr Lys Asp Ile Thr Thr Pro Leu Val Glu Thr Lys Pro			
50	55	60	
Met Val Glu Lys Thr Leu Pro Glu Gln Gly Asn Tyr Val Tyr Ser Lys			
65	70	75	80
Glu Thr Glu Val Lys Asn Thr Pro Ser Lys Ser Ala Pro Val Ala Phe			
85	90	95	
Tyr Ala Lys Lys Gly Asp Lys Val Phe Tyr Asp Gln Val Phe Asn Lys			
100	105	110	
Asp Asn Val Lys Trp Ile Ser Tyr Lys Ser Phe Cys Gly Val Arg Arg			
115	120	125	
Tyr Ala Ala Ile Glu Ser Leu Asp Pro Ser Gly Gly Ser Glu Thr Lys			
130	135	140	
Ala Pro Thr Pro Val Thr Asn Ser Gly Ser Asn Asn Gln Glu Lys Ile			
145	150	155	160

Ala	Thr	Gln	Gly	Asn	Tyr	Thr	Phe	Ser	His	Lys	Val	Glu	Val	Lys	Asn
					165				170					175	
Glu	Ala	Lys	Val	Ala	Ser	Pro	Thr	Gln	Phe	Thr	Leu	Asp	Lys	Gly	Asp
					180				185				190		
Arg	Ile	Phe	Tyr	Asp	Gln	Ile	Leu	Thr	Ile	Glu	Gly	Asn	Gln	Trp	Leu
					195				200				205		
Ser	Tyr	Lys	Ser	Phe	Asn	Gly	Val	Arg	Arg	Phe	Val	Leu	Leu	Gly	Lys
					210				215			220			
Ala	Ser	Ser	Val	Glu	Lys	Thr	Glu	Asp	Lys	Glu	Lys	Val	Ser	Pro	Gln
					225				230			235		240	
Pro	Gln	Ala	Arg	Ile	Thr	Lys	Thr	Gly	Arg	Leu	Thr	Ile	Ser	Asn	Glu
					245				250			255			
Thr	Thr	Thr	Gly	Phe	Asp	Ile	Leu	Ile	Thr	Asn	Ile	Lys	Asp	Asp	Asn
					260				265			270			
Gly	Ile	Ala	Ala	Val	Lys	Val	Pro	Val	Trp	Thr	Glu	Gln	Gly	Gly	Gln
					275				280			285			
Asp	Asp	Ile	Lys	Trp	Tyr	Thr	Ala	Val	Thr	Thr	Gly	Asp	Gly	Asn	Tyr
					290				295			300			
Lys	Val	Ala	Val	Ser	Phe	Ala	Asp	His	Lys	Asn	Glu	Lys	Gly	Leu	Tyr
					305				310			315		320	
Asn	Ile	His	Leu	Tyr	Tyr	Gln	Glu	Ala	Ser	Gly	Thr	Leu	Val	Gly	Val
					325				330			335			
Thr	Gly	Thr	Lys	Val	Thr	Val	Ala	Gly	Thr	Asn	Ser	Ser	Gln	Glu	Pro
					340				345			350			
Ile	Glu	Asn	Gly	Leu	Ala	Lys	Thr	Gly	Val	Tyr	Asn	Ile	Ile	Gly	Ser
					355				360			365			
Thr	Glu	Val	Lys	Asn	Glu	Ala	Lys	Ile	Ser	Ser	Gln	Thr	Gln	Phe	Thr
					370				375			380			
Leu	Glu	Lys	Gly	Asp	Lys	Ile	Asn	Tyr	Asp	Gln	Val	Leu	Thr	Ala	Asp
					385				390			395		400	
Gly	Tyr	Gln	Trp	Ile	Ser	Tyr	Lys	Ser	Tyr	Ser	Gly	Val	Arg	Arg	Tyr
					405				410			415			
Ile	Pro	Val	Lys	Lys	Leu	Thr	Thr	Ser	Ser	Glu	Lys	Ala	Lys	Asp	Glu
					420				425			430			
Ala	Thr	Lys	Pro	Thr	Ser	Tyr	Pro	Asn							
					435				440						

<210> 18

<211> 2670

<212> DNA

<213> Streptococcus agalactiae

<400> 18

atggaaaaaga	gacaaaaaaat	atggagaggg	ttatcagta	ttttactaat	cctgtcccaa		60
attccatting	gtatatttgtt	acaagtggaa	acccaatgata	ccaatcaagc	acttggaaaaa		120
gtatattgtt	aaaaaaaaacgg	agacaatgtc	acaccattag	gcaaagcgac	ttttgtgtta		180
aaaaatgtaca	atgataagtc	agaaaacaatg	cacgaaacgg	tagagggttc	tggagaagca		240
acctttgaaa	acataaaaacc	tggagactac	acattaagag	aagaacacgc	accaatttgtt		300
tataaaaaaa	ctgataaaaac	ctggaaatgtt	aaagtggcag	ataacggcgc	aacaataatc		360
gagggtatgg	atgcagataa	agcagagaaa	cgaaaagaag	ttttgaatgc	ccaatatacca		420
aaatcagcta	ttttgttggaa	tacaaaaaaa	aatttccat	tagttatgt	agagggttcc		480
aaatgttgta	aacaataaca	agcatgttgc	ccataataatg	gaaaagatgg	tgcgagagag		540
atgtgttgcg	gttggttatc	aaaaaaaattt	acagggttca	atgtatctcg	taagaataaaa		600
tataaaattt	atthaactgt	tgagggtaaa	accactgttgc	aaacgaaaga	acttaatccat		660
ccactatgtt	tcgttgtgtct	attagataat	tcaaatatgt	tgaataatgt	aagaggccat		720

aattctcaa	gaggcattaa	agctggggaa	gcagtggaaa	agctgattga	taaaaattca	780
tcaaaaaat	aaatagagt	agctcttgc	acatatgcct	caaccat	tttgatgtact	840
gaagcgacc	tatcaaaagg	agttgcgcgt	caaatggta	aagcgcgtaa	tgatagtgt	900
tcatggatt	atcataaaac	tacttttaca	gaaactacac	ataattacag	tatattaat	960
ttaacaat	atgtcaacga	agttaaat	cttaaaatca	gaattccaa	ggaagcggag	1020
cataataat	gggatcgcac	gctctatcaa	tttggcgcg	catttaactca	aaaagctca	1080
atgaaagca	atgaaaat	agagacacaa	agttcta	ctagaaaaaa	acttattttt	1140
cacgttaact	atggtgtccc	taagatgtct	tatgcctaa	attttaatcc	tttatataatca	1200
acatcttac	aaaaccagg	taattcttt	ttaaataaaa	taccagatag	aagtggat	1260
ctccaagagg	attttaat	caatgtgtat	gattatcaaa	tagtaaaaagg	atgtggagag	1320
atgttttac	tgttttcgg	tagaaaaat	cctgttactg	gaggaaacgcac	acaaggcgt	1380
tatcgatgt	cggaaaaat	actctctg	atgagtaatg	agggatatgc	attaatatgt	1440
ggatattat	atctcttgc	gagagattac	aactgggtct	atccatttgc	tcctaaagaca	1500
aagaaagca	ctgaaacgc	acaaatcaa	actcatgtg	agccaaacaa	attataactt	1560
aatggaaata	taagacacta	aggttatgc	attttactg	ttgggatgg	tgtaaacgg	1620
gatctgg	caactctct	taaagtcg	aaattttatgc	aatcaat	atgaaaaca	1680
gaaaattaa	ctaattgtga	tgatacaat	aaaatttgc	atgagctaa	taatactt	1740
aaaacattt	ttggagaa	acatttctat	gttggatgg	atgtgactga	tcctatggg	1800
gagatgatt	aattccaa	aaaaaaatgt	caaaatgtt	catatgtat	ttacgttttgc	1860
gttggaaat	atggcgt	ataaaaaaat	gttgggttgc	ttgggtggacc	aaacagtgt	1920
ggggaaat	taaaatgt	taatgtact	tatgataga	catctcaaa	catcaaaatc	1980
aatcatttgc	atttgcgg	ttggacaaaa	tgatgttctt	cattatgt	acgtttttaa	2040
gataactata	taatgtaca	attttacaat	acaaataatc	gtacaacgc	aagtccgg	2100
atgtaaaaag	accaatgtt	tattttgtat	ttcccaattc	ccaaaatcc	tgatgttgcgt	2160
gagttcccg	tactaaat	caatgtatc	agaaaaaatgg	gttggatgt	atttttttttgc	2220
gttataaaat	acaaatccat	agaatcg	ttgggatgt	agtttcaact	tcagatagaa	2280
aaagat	ctgggtataa	gcaattttgt	ccaggggaa	gttggatgt	acaaaagaa	2340
gatgtttaaa	ttttttaa	tgacttca	gttggat	actaaatata	tggaaatc	2400
agttccatgt	gttataat	tggttaaaac	aaacatgtt	tgatatttac	aattttttaa	2460
ggagaatgt	cgaaatgtt	agcagatcc	aatgtataa	aaaatcaat	cgggtatctt	2520
gaagggaaat	gtaaatctt	tattttcaac	acttccaa	ccccaccagg	tgtttttctt	2580
aaaacagggg	gaattgtac	aattgtctat	atattgttg	gttctactt	tatgataactt	2640
accatttgc	ttttccgtc	taaacaattt				2670

<210> 19

<211> 890

<212> PRT

<213> Streptococcus agalactiae

<400> 19

Met	Lys	Lys	Arg	Gln	Lys	Ile	Trp	Arg	Gly	Leu	Ser	Val	Thr	Leu	Leu
1				5			10								15
Ile	Leu	Ser	Gln	Ile	Pro	Phe	Gly	Ile	Leu	Val	Gln	Gly	Glu	Thr	Gln
				20		25									30
Asp	Thr	Asn	Gln	Ala	Leu	Gly	Lys	Val	Ile	Val	Lys	Lys	Thr	Gly	Asp
				35		40									45
Asn	Ala	Thr	Pro	Leu	Gly	Lys	Ala	Thr	Phe	Val	Leu	Lys	Asn	Asp	Asn
				50		55									60
Asp	Lys	Ser	Glu	Thr	Ser	His	Glu	Thr	Val	Glu	Gly	Ser	Gly	Glu	Ala
	65		70			75									80
Thr	Phe	Glu	Asn	Ile	Lys	Pro	Gly	Asp	Tyr	Thr	Leu	Arg	Glu	Glu	Thr
				85		90									95
Ala	Pro	Ile	Gly	Tyr	Lys	Lys	Thr	Asp	Lys	Thr	Trp	Lys	Val	Lys	Val
	100				105										110
Ala	Asp	Asn	Gly	Ala	Thr	Ile	Ile	Glu	Gly	Met	Asp	Ala	Asp	Lys	Ala

115	120	125
Glu Lys Arg Lys Glu Val Leu Asn Ala Gln Tyr Pro Lys Ser Ala Ile		
130	135	140
Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser		
145	150	155
Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp		
165	170	175
Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly		
180	185	190
Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu		
195	200	205
Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val		
210	215	220
Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn		
225	230	235
Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile		
245	250	255
Asp Lys Ile Thr Ser Asn Lys Asp Asn Arg Val Ala Leu Val Thr Tyr		
260	265	270
Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val		
275	280	285
Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr		
290	295	300
His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn		
305	310	315
Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro		
325	330	335
Lys Glu Ala Glu His Ile Asn Gly Asp Arg Thr Leu Tyr Gln Phe Gly		
340	345	350
Ala Thr Phe Thr Gln Lys Ala Leu Met Lys Ala Asn Glu Ile Leu Glu		
355	360	365
Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp		
370	375	380
Gly Val Pro Thr Met Ser Tyr Ala Ile Asn Phe Asn Pro Tyr Ile Ser		
385	390	395
Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp		
405	410	415
Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr		
420	425	430
Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg		
435	440	445
Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro		
450	455	460
Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser		
465	470	475
Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe		
485	490	495
Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His		
500	505	510
Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly		
515	520	525
Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala		
530	535	540
Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr		

545	550	555	560
Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu			
565	570	575	
Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp			
580	585	590	
Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys			
595	600	605	
Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp			
610	615	620	
Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp			
625	630	635	640
Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln			
645	650	655	
Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val			
660	665	670	
Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe			
675	680	685	
Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu			
690	695	700	
Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg			
705	710	715	720
Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val			
725	730	735	
Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly			
740	745	750	
Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln			
755	760	765	
Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile			
770	775	780	
Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser			
785	790	795	800
Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe			
805	810	815	
Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala			
820	825	830	
Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly Lys His Leu Ile			
835	840	845	
Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro Lys Thr Gly Gly			
850	855	860	
Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr Phe Met Ile Leu			
865	870	875	880
Thr Ile Cys Ser Phe Arg Arg Lys Gln Leu			
885	890		

<210> 20

<211> 862

<212> PRT

<213> Streptococcus agalactiae

<400> 20

Gly Glu Thr Gln Asp Thr Asn Gln Ala Leu Gly Lys Val Ile Val Lys			
1	5	10	15

Lys Thr Gly Asp Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu			
20	25	30	

Lys Asn Asp Asn Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly			
---	--	--	--

35	40	45
Ser Gly Glu Ala Thr Phe Glu Asn Ile Lys Pro Gly Asp Tyr Thr Leu		
50	55	60
Arg Glu Glu Thr Ala Pro Ile Gly Tyr Lys Lys Thr Asp Lys Thr Trp		
65	70	75
Lys Val Lys Val Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp		
85	90	95
Ala Asp Lys Ala Glu Lys Arg Lys Glu Val Leu Asn Ala Gln Tyr Pro		
100	105	110
Lys Ser Ala Ile Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn		
115	120	125
Val Glu Gly Ser Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile		
130	135	140
Asn Gly Lys Asp Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys		
145	150	155
Lys Ile Thr Gly Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu		
165	170	175
Leu Thr Val Glu Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln		
180	185	190
Pro Leu Asp Val Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn		
195	200	205
Glu Arg Ala Asn Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val		
210	215	220
Glu Lys Leu Ile Asp Lys Ile Thr Ser Asn Lys Asp Asn Arg Val Ala		
225	230	235
Leu Val Thr Tyr Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val		
245	250	255
Ser Lys Gly Val Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val		
260	265	270
Ser Trp Asp Tyr His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr		
275	280	285
Ser Tyr Leu Asn Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys		
290	295	300
Ser Arg Ile Pro Lys Glu Ala Glu His Ile Asn Gly Asp Arg Thr Leu		
305	310	315
Tyr Gln Phe Gly Ala Thr Phe Thr Gln Lys Ala Leu Met Lys Ala Asn		
325	330	335
Glu Ile Leu Glu Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe		
340	345	350
His Val Thr Asp Gly Val Pro Thr Met Ser Tyr Ala Ile Asn Phe Asn		
355	360	365
Pro Tyr Ile Ser Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn		
370	375	380
Lys Ile Pro Asp Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn		
385	390	395
Gly Asp Asp Tyr Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu		
405	410	415
Phe Ser Asp Arg Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala		
420	425	430
Tyr Arg Val Pro Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr		
435	440	445
Ala Ile Asn Ser Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp		
450	455	460
Val Tyr Pro Phe Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln		
465	470	475
		480

Ile Lys Thr His Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile
 485 490 495
 Arg Pro Lys Gly Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly
 500 505 510
 Asp Pro Gly Ala Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile
 515 520 525
 Ser Ser Lys Thr Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile
 530 535 540
 Tyr Asp Glu Leu Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His
 545 550 555 560
 Ser Ile Val Asp Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu
 565 570 575
 Phe Gln Leu Lys Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu
 580 585 590
 Val Gly Asn Asp Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly
 595 600 605
 Pro Asn Ser Asp Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp
 610 615 620
 Lys Thr Ser Gln Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly
 625 630 635 640
 Gln Lys Val Val Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile
 645 650 655
 Ser Asn Lys Phe Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys
 660 665 670
 Ser Glu Lys Glu Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile
 675 680 685
 Arg Asp Val Arg Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys
 690 695 700
 Met Gly Glu Val Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu
 705 710 715 720
 Ser Leu Leu Gly Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser
 725 730 735
 Gly Tyr Lys Gln Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn
 740 745 750
 Asp Gly Lys Ile Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu
 755 760 765
 Tyr Glu Ile Ser Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro
 770 775 780
 Val Val Thr Phe Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala
 785 790 795 800
 Asp Pro Asn Ala Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly
 805 810 815
 Lys His Leu Ile Thr Asn Thr Pro Lys Arg Pro Pro Gly Val Phe Pro
 820 825 830
 Lys Thr Gly Gly Ile Gly Thr Ile Val Tyr Ile Leu Val Gly Ser Thr
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<210> 21
 <211> 851

<212> PRT

<213> Streptococcus agalactiae

<400> 21

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 Asp Thr Asn Gln Ala Leu Gly Lys Val Ile Val Lys Lys Thr Gly Asp
 35 40 45
 Asn Ala Thr Pro Leu Gly Lys Ala Thr Phe Val Leu Lys Asn Asp Asn
 50 55 60
 Asp Lys Ser Glu Thr Ser His Glu Thr Val Glu Gly Ser Gly Glu Ala
 65 70 75 80
 Thr Phe Glu Asn Ile Lys Pro Gly Asp Tyr Thr Leu Arg Glu Glu Thr
 85 90 95
 Ala Pro Ile Gly Tyr Lys Lys Thr Asp Lys Thr Trp Lys Val Lys Val
 100 105 110

 Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp Ala Asp Lys Ala
 115 120 125
 Glu Lys Arg Lys Glu Val Leu Asn Ala Gln Tyr Pro Lys Ser Ala Ile
 130 135 140
 Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn Val Glu Gly Ser
 145 150 155 160
 Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile Asn Gly Lys Asp
 165 170 175
 Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys Lys Ile Thr Gly
 180 185 190
 Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu Leu Thr Val Glu
 195 200 205
 Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln Pro Leu Asp Val
 210 215 220
 Val Val Leu Leu Asp Asn Ser Asn Ser Met Asn Asn Glu Arg Ala Asn
 225 230 235 240
 Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val Glu Lys Leu Ile
 245 250 255
 Asp Lys Ile Thr Ser Asn Lys Asp Asn Arg Val Ala Leu Val Thr Tyr
 260 265 270
 Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val Ser Lys Gly Val
 275 280 285
 Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val Ser Trp Asp Tyr
 290 295 300
 His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr Ser Tyr Leu Asn
 305 310 315 320
 Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys Ser Arg Ile Pro
 325 330 335
 Lys Glu Ala Glu His Ile Asn Gly Asp Arg Thr Leu Tyr Gln Phe Gly
 340 345 350
 Ala Thr Phe Thr Gln Lys Ala Leu Met Lys Ala Asn Glu Ile Leu Glu
 355 360 365
 Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe His Val Thr Asp
 370 375 380
 Gly Val Pro Thr Met Ser Tyr Ala Ile Asn Phe Asn Pro Tyr Ile Ser
 385 390 395 400
 Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn Lys Ile Pro Asp
 405 410 415
 Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn Gly Asp Asp Tyr
 420 425 430

Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu Phe Ser Asp Arg
 435 440 445
 Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala Tyr Arg Val Pro
 450 455 460
 Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr Ala Ile Asn Ser
 465 470 475 480
 Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp Val Tyr Pro Phe
 485 490 495
 Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln Ile Lys Thr His
 500 505 510
 Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile Arg Pro Lys Gly
 515 520 525
 Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly Asp Pro Gly Ala
 530 535 540
 Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile Ser Ser Lys Thr
 545 550 555 560
 Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile Tyr Asp Glu Leu
 565 570 575
 Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His Ser Ile Val Asp
 580 585 590
 Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu Phe Gln Leu Lys
 595 600 605
 Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu Val Gly Asn Asp
 610 615 620
 Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly Pro Asn Ser Asp
 625 630 635 640
 Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp Lys Thr Ser Gln
 645 650 655
 Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly Gln Lys Val Val
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 Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile Ser Asn Lys Phe
 675 680 685
 Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys Ser Glu Lys Glu
 690 695 700
 Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp Val Arg
 705 710 715 720
 Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys Met Gly Glu Val
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 Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu Ser Leu Leu Gly
 740 745 750
 Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser Gly Tyr Lys Gln
 755 760 765
 Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn Asp Gly Lys Ile
 770 775 780
 Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu Tyr Glu Ile Ser
 785 790 795 800
 Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro Val Val Thr Phe
 805 810 815
 Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala Asp Pro Asn Ala
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 835 840 845
 Thr Asn Thr
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<210> 22
<211> 823
<212> PRT
<213> Streptococcus agalactiae

<400> 22
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35 40 45
Ser Gly Glu Ala Thr Phe Glu Asn Ile Lys Pro Gly Asp Tyr Thr Leu
50 55 60
Arg Glu Glu Thr Ala Pro Ile Gly Tyr Lys Lys Thr Asp Lys Thr Trp
65 70 75 80
Lys Val Lys Val Ala Asp Asn Gly Ala Thr Ile Ile Glu Gly Met Asp
85 90 95
Ala Asp Lys Ala Glu Lys Arg Lys Glu Val Leu Asn Ala Gln Tyr Pro
100 105 110
Lys Ser Ala Ile Tyr Glu Asp Thr Lys Glu Asn Tyr Pro Leu Val Asn
115 120 125
Val Glu Gly Ser Lys Val Gly Glu Gln Tyr Lys Ala Leu Asn Pro Ile
130 135 140
Asn Gly Lys Asp Gly Arg Arg Glu Ile Ala Glu Gly Trp Leu Ser Lys
145 150 155 160
Lys Ile Thr Gly Val Asn Asp Leu Asp Lys Asn Lys Tyr Lys Ile Glu
165 170 175
Leu Thr Val Glu Gly Lys Thr Thr Val Glu Thr Lys Glu Leu Asn Gln
180 185 190
Pro Leu Asp Val Val Val Leu Asp Asn Ser Asn Ser Met Asn Asn
195 200 205
Glu Arg Ala Asn Asn Ser Gln Arg Ala Leu Lys Ala Gly Glu Ala Val
210 215 220
Glu Lys Leu Ile Asp Lys Ile Thr Ser Asn Lys Asp Asn Arg Val Ala
225 230 235 240
Leu Val Thr Tyr Ala Ser Thr Ile Phe Asp Gly Thr Glu Ala Thr Val
245 250 255
Ser Lys Gly Val Ala Asp Gln Asn Gly Lys Ala Leu Asn Asp Ser Val
260 265 270
Ser Trp Asp Tyr His Lys Thr Thr Phe Thr Ala Thr Thr His Asn Tyr
275 280 285
Ser Tyr Leu Asn Leu Thr Asn Asp Ala Asn Glu Val Asn Ile Leu Lys
290 295 300
Ser Arg Ile Pro Lys Glu Ala Glu His Ile Asn Gly Asp Arg Thr Leu
305 310 315 320
Tyr Gln Phe Gly Ala Thr Phe Thr Gln Lys Ala Leu Met Lys Ala Asn
325 330 335
Glu Ile Leu Glu Thr Gln Ser Ser Asn Ala Arg Lys Lys Leu Ile Phe
340 345 350
His Val Thr Asp Gly Val Pro Thr Met Ser Tyr Ala Ile Asn Phe Asn
355 360 365
Pro Tyr Ile Ser Thr Ser Tyr Gln Asn Gln Phe Asn Ser Phe Leu Asn

370	375	380
Lys Ile Pro Asp Arg Ser Gly Ile Leu Gln Glu Asp Phe Ile Ile Asn		
385	390	395
Gly Asp Asp Tyr Gln Ile Val Lys Gly Asp Gly Glu Ser Phe Lys Leu		400
405	410	415
Phe Ser Asp Arg Lys Val Pro Val Thr Gly Gly Thr Thr Gln Ala Ala		
420	425	430
Tyr Arg Val Pro Gln Asn Gln Leu Ser Val Met Ser Asn Glu Gly Tyr		
435	440	445
Ala Ile Asn Ser Gly Tyr Ile Tyr Leu Tyr Trp Arg Asp Tyr Asn Trp		
450	455	460
Val Tyr Pro Phe Asp Pro Lys Thr Lys Lys Val Ser Ala Thr Lys Gln		
465	470	475
Ile Lys Thr His Gly Glu Pro Thr Thr Leu Tyr Phe Asn Gly Asn Ile		480
485	490	495
Arg Pro Lys Gly Tyr Asp Ile Phe Thr Val Gly Ile Gly Val Asn Gly		
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Asp Pro Gly Ala Thr Pro Leu Glu Ala Glu Lys Phe Met Gln Ser Ile		
515	520	525
Ser Ser Lys Thr Glu Asn Tyr Thr Asn Val Asp Asp Thr Asn Lys Ile		
530	535	540
Tyr Asp Glu Leu Asn Lys Tyr Phe Lys Thr Ile Val Glu Glu Lys His		
545	550	555
Ser Ile Val Asp Gly Asn Val Thr Asp Pro Met Gly Glu Met Ile Glu		560
565	570	575
Phe Gln Leu Lys Asn Gly Gln Ser Phe Thr His Asp Asp Tyr Val Leu		
580	585	590
Val Gly Asn Asp Gly Ser Gln Leu Lys Asn Gly Val Ala Leu Gly Gly		
595	600	605
Pro Asn Ser Asp Gly Gly Ile Leu Lys Asp Val Thr Val Thr Tyr Asp		
610	615	620
Lys Thr Ser Gln Thr Ile Lys Ile Asn His Leu Asn Leu Gly Ser Gly		
625	630	635
Gln Lys Val Val Leu Thr Tyr Asp Val Arg Leu Lys Asp Asn Tyr Ile		640
645	650	655
Ser Asn Lys Phe Tyr Asn Thr Asn Asn Arg Thr Thr Leu Ser Pro Lys		
660	665	670
Ser Glu Lys Glu Pro Asn Thr Ile Arg Asp Phe Pro Ile Pro Lys Ile		
675	680	685
Arg Asp Val Arg Glu Phe Pro Val Leu Thr Ile Ser Asn Gln Lys Lys		
690	695	700
Met Gly Glu Val Glu Phe Ile Lys Val Asn Lys Asp Lys His Ser Glu		
705	710	715
Ser Leu Leu Gly Ala Lys Phe Gln Leu Gln Ile Glu Lys Asp Phe Ser		720
725	730	735
Gly Tyr Lys Gln Phe Val Pro Glu Gly Ser Asp Val Thr Thr Lys Asn		
740	745	750
Asp Gly Lys Ile Tyr Phe Lys Ala Leu Gln Asp Gly Asn Tyr Lys Leu		
755	760	765
Tyr Glu Ile Ser Ser Pro Asp Gly Tyr Ile Glu Val Lys Thr Lys Pro		
770	775	780
Val Val Thr Phe Thr Ile Gln Asn Gly Glu Val Thr Asn Leu Lys Ala		
785	790	795
Asp Pro Asn Ala Asn Lys Asn Gln Ile Gly Tyr Leu Glu Gly Asn Gly		800

	805	810	815	
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<212> DNA				
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aatttttaac cgtttttga gtttttagca caaaaagata aagatttgag caaaaataca				180
aatatcattac tattatgtatc ggatttcaggat gatgcattag atttagaata ttctatagt				240
attcaaggat taaaaaaaaa taaggatatta gggaaagttt aaacaagaaa aagtcaaata				300
aaaaagcccg gtggctataa tgaggtagaa aataaaaggag tcctatgtaa atatttaaa				360
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gcaatggata ctaagaattt aaaagaattt aaaaaattaa aagtaaaaag ttattttatta				480
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Lys Glu Glu Tyr Gln Ala Glu Gln Asn Phe Lys Pro Phe Phe Glu Phe				
35 40 45				
Leu Ala Gln Lys Asp Lys Asp Leu Ser Lys Ile Gln Lys Tyr Leu Leu				
50 55 60				
Leu Val Ser Asp Ser Gly Asp Ala Leu Asp Leu Glu Tyr Phe Tyr Ser				
65 70 75 80				
Ile Gln Asp Leu Lys Lys Asn Lys Asp Leu Gly Lys Phe Glu Thr Arg				
85 90 95				
Lys Ser Gln Ile Glu Lys Pro Gly Gly Asn Glu Leu Glu Asn Lys				
100 105 110				
Glu Val Pro Phe Glu Tyr Phe Lys Asn Asn Ile Val Tyr Pro Lys Gly				
115 120 125				
Lys Pro Asn Ile Thr Phe Asp Asp Phe Ile Ile Gly Ala Met Asp Thr				
130 135 140				
Lys Glu Leu Lys Glu Leu Lys Lys Leu Lys Val Lys Ser Tyr Leu Leu				
145 150 155 160				
Lys His Pro Glu Thr Glu Leu Lys Asp Ile Thr Tyr Glu Leu Pro Thr				
165 170 175				
Gln Ser Lys Leu Ile Lys Lys				
180				
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<213> Streptococcus agalactiae

<400> 25

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			20			25				30					
Asp	Leu	Ser	Lys	Ile	Gln	Lys	Tyr	Leu	Leu	Leu	Val	Ser	Asp	Ser	Gly
	35						40				45				
Asp	Ala	Leu	Asp	Leu	Glu	Tyr	Phe	Tyr	Ser	Ile	Gln	Asp	Leu	Lys	Lys
	50						55				60				
Asn	Lys	Asp	Leu	Gly	Lys	Phe	Glu	Thr	Arg	Lys	Ser	Gln	Ile	Glu	Lys
	65					70			75				80		
Pro	Gly	Gly	Tyr	Asn	Glu	Leu	Glu	Asn	Lys	Glu	Val	Pro	Phe	Glu	Tyr
				85					90				95		
Phe	Lys	Asn	Asn	Ile	Val	Tyr	Pro	Lys	Gly	Lys	Pro	Asn	Ile	Thr	Phe
				100					105				110		
Asp	Asp	Phe	Ile	Ile	Gly	Ala	Met	Asp	Thr	Lys	Glu	Leu	Lys	Glu	Leu
				115					120				125		
Lys	Lys	Leu	Lys	Val	Lys	Ser	Tyr	Leu	Leu	Lys	His	Pro	Glu	Thr	Glu
				130				135			140				
Leu	Lys	Asp	Ile	Thr	Tyr	Glu	Leu	Pro	Thr	Gln	Ser	Lys	Leu	Ile	Lys
	145				150					155				160	
Lys															

<210> 26

<211> 3402

<212> DNA

<213> Streptococcus agalactiae

<400> 26

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cgcttaaacag	caaaaaactaa	acgacgttac	caatcaaaag	aaaatcttga	aaaagctaaa										480
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actccctaaa	aaaggtaatc	ttcttgcgt	cttagaaagaa	gatcttcaa	gcgtgcctta	3300
gctacaaaag	catcaacaa	agatcagttt	ccaaacgacta	atgacaaggaa	tacaatctgt	3360
ttatcatctcc	ttaagttgt	tatgaccact	ttttcttgcgt	ga		3402

<210> 27

<211> 1134

<212> PRT

<213> Streptococcus agalactiae

<400> 27

Met	Arg	Lys	Lys	Gln	Lys	Leu	Pro	Phe	Asp	Lys	Leu	Ala	Ile	Ala	Leu
1				5			10			15					
Ile	Ser	Thr	Ile	Leu	Leu	Asn	Ala	Gln	Ser	Asp	Ile	Lys	Ala	Asn	
						20			25			30			
Thr	Val	Thr	Glu	Asp	Thr	Pro	Ala	Thr	Glu	Gln	Ala	Val	Glu	Pro	Pro
						35			40			45			
Gln	Pro	Ile	Ala	Val	Ser	Glu	Glu	Ser	Arg	Ser	Ser	Lys	Glu	Thr	Lys
						50			55			60			
Thr	Ser	Gln	Thr	Pro	Ser	Asp	Val	Gly	Glu	Thr	Val	Ala	Asp	Asp	Ala
						65			70			75			80
Asn	Asp	Leu	Ala	Pro	Gln	Ala	Pro	Ala	Lys	Thr	Ala	Asp	Thr	Pro	Ala
						85			90			95			
Thr	Ser	Lys	Ala	Thr	Ile	Arg	Asp	Leu	Asn	Asp	Pro	Ser	His	Val	Lys

100	105	110
Thr Leu Gln Glu Lys Ala Gly Lys Gly Ala Gly Thr Val Val Ala Val		
115	120	125
Ile Asp Ala Gly Phe Asp Lys Asn His Glu Ala Ala Trp Arg Leu Thr Asp		
130	135	140
Lys Thr Lys Ala Arg Tyr Gln Ser Lys Glu Asn Leu Glu Lys Ala Lys		
145	150	155
Lys Glu His Gly Ile Thr Tyr Gly Glu Trp Val Asn Asp Lys Val Ala		
165	170	175
Tyr Tyr His Asp Tyr Ser Lys Asp Gly Lys Asn Ala Val Asp Gln Glu		
180	185	190
His Gly Thr His Val Ser Gly Ile Leu Ser Gly Asn Ala Pro Ser Glu		
195	200	205
Met Lys Glu Pro Tyr Arg Leu Glu Gly Ala Met Pro Glu Ala Gln Leu		
210	215	220
Leu Leu Met Arg Val Glu Ile Val Asn Gly Leu Ala Asp Tyr Ala Arg		
225	230	235
Asn Tyr Ala Gln Ala Ile Arg Asp Ala Val Asn Leu Gly Ala Lys Val		
245	250	255
Ile Asn Met Ser Phe Gly Asn Ala Ala Leu Ala Tyr Ala Asn Leu Pro		
260	265	270
Asp Glu Thr Lys Lys Ala Phe Asp Tyr Ala Lys Ser Lys Gly Val Ser		
275	280	285
Ile Val Thr Ser Ala Gly Asn Asp Ser Ser Phe Gly Gly Lys Pro Arg		
290	295	300
Leu Pro Leu Ala Asp His Pro Asp Tyr Gly Val Val Gly Thr Pro Ala		
305	310	315
Ala Ala Asp Ser Thr Leu Thr Val Ala Ser Tyr Ser Pro Asp Lys Gln		
325	330	335
Leu Thr Glu Thr Ala Thr Val Lys Thr Asp Asp His Gln Asp Lys Glu		
340	345	350
Met Pro Val Ile Ser Thr Asn Arg Phe Glu Pro Asn Lys Ala Tyr Asp		
355	360	365
Tyr Ala Tyr Ala Asn Arg Gly Thr Lys Glu Asp Asp Phe Lys Asp Val		
370	375	380
Glu Gly Lys Ile Ala Leu Ile Glu Arg Gly Asp Ile Asp Phe Lys Asp		
385	390	395
Lys Ile Ala Asn Ala Lys Lys Ala Gly Ala Val Gly Val Leu Ile Tyr		
405	410	415
Asp Asn Gln Asp Lys Gly Phe Pro Ile Glu Leu Pro Asn Val Asp Gln		
420	425	430
Met Pro Ala Ala Phe Ile Ser Arg Arg Asp Gly Leu Leu Lys Asp		
435	440	445
Asn Pro Pro Lys Thr Ile Thr Phe Asn Ala Thr Pro Lys Val Leu Pro		
450	455	460
Thr Ala Ser Gly Thr Lys Leu Ser Arg Phe Ser Ser Trp Gly Leu Thr		
465	470	475
Ala Asp Gly Asn Ile Lys Pro Asp Ile Ala Ala Pro Gly Gln Asp Ile		
485	490	495
Leu Ser Ser Val Ala Asn Asn Lys Tyr Ala Lys Leu Ser Gly Thr Ser		
500	505	510
Met Ser Ala Pro Leu Val Ala Gly Ile Met Gly Leu Leu Gln Lys Gln		
515	520	525
Tyr Glu Thr Gln Tyr Pro Asp Met Thr Pro Ser Glu Arg Leu Asp Leu		
530	535	540

Ala Lys Lys Val Leu Met Ser Ser Ala Thr Ala Leu Tyr Asp Glu Asp
 545 550 555 560
 Glu Lys Ala Tyr Phe Ser Pro Arg Gln Gln Gly Ala Gly Ala Val Asp
 565 570 575
 Ala Lys Lys Ala Ser Ala Ala Thr Met Tyr Val Thr Asp Lys Asp Asn
 580 585 590
 Thr Ser Ser Lys Val His Leu Asn Asn Val Ser Asp Lys Phe Glu Val
 595 600 605
 Thr Val Thr Val His Asn Lys Ser Asp Lys Pro Gln Glu Leu Tyr Tyr
 610 615 620
 Gln Val Thr Val Gln Thr Asp Lys Val Asp Gly Lys His Phe Ala Leu
 625 630 635 640
 Ala Pro Lys Ala Leu Tyr Glu Thr Ser Trp Gln Lys Ile Thr Ile Pro
 645 650 655
 Ala Asn Ser Ser Lys Gln Val Thr Val Pro Ile Asp Ala Ser Arg Phe
 660 665 670
 Ser Lys Asp Leu Leu Ala Gln Met Lys Asn Gly Tyr Phe Leu Glu Gly
 675 680 685
 Phe Val Arg Phe Lys Gln Asp Pro Thr Lys Glu Glu Leu Met Ser Ile
 690 695 700
 Pro Tyr Ile Gly Phe Arg Gly Asp Phe Gly Asn Leu Ser Ala Leu Glu
 705 710 715 720
 Lys Pro Ile Tyr Asp Ser Lys Asp Gly Ser Ser Tyr Tyr His Glu Ala
 725 730 735
 Asn Ser Asp Ala Lys Asp Gln Leu Asp Gly Asp Gly Leu Gln Phe Tyr
 740 745 750
 Ala Leu Lys Asn Asn Phe Thr Ala Leu Thr Thr Glu Ser Asn Pro Trp
 755 760 765
 Thr Ile Ile Lys Ala Val Lys Glu Gly Val Glu Asn Ile Glu Asp Ile
 770 775 780
 Glu Ser Ser Glu Ile Thr Glu Thr Ile Phe Ala Gly Thr Phe Ala Lys
 785 790 795 800
 Gln Asp Asp Asp Ser His Tyr Tyr Ile His Arg His Ala Asn Gly Lys
 805 810 815
 Pro Tyr Ala Ala Ile Ser Pro Asn Gly Asp Gly Asn Arg Asp Tyr Val
 820 825 830
 Gln Phe Gln Gly Thr Phe Leu Arg Asn Ala Lys Asn Leu Val Ala Glu
 835 840 845
 Val Leu Asp Lys Glu Gly Asn Val Val Trp Thr Ser Glu Val Thr Glu
 850 855 860
 Gln Val Val Lys Asn Tyr Asn Asn Asp Leu Ala Ser Thr Leu Gly Ser
 865 870 875 880
 Thr Arg Phe Glu Lys Thr Arg Trp Asp Gly Lys Asp Lys Asp Gly Lys
 885 890 895
 Val Val Ala Asn Gly Thr Tyr Thr Tyr Arg Val Arg Tyr Thr Pro Ile
 900 905 910
 Ser Ser Gly Ala Lys Glu Gln His Thr Asp Phe Asp Val Ile Val Asp
 915 920 925
 Asn Thr Thr Pro Glu Val Ala Thr Ser Ala Thr Phe Ser Thr Glu Asp
 930 935 940
 Ser Arg Leu Thr Leu Ala Ser Lys Pro Lys Thr Ser Gln Pro Val Tyr
 945 950 955 960
 Arg Glu Arg Ile Ala Tyr Thr Tyr Met Asp Glu Asp Leu Pro Thr Thr
 965 970 975
 Glu Tyr Ile Ser Pro Asn Glu Asp Gly Thr Phe Thr Leu Pro Glu Glu

	980	985	990
Ala Glu Thr Met Glu Gly Ala Thr Val Pro Leu Lys Met Ser Asp Phe			
995	1000	1005	
Thr Tyr Val Val Glu Asp Met Ala Gly Asn Ile Thr Tyr Thr Pro Val			
1010	1015	1020	
Thr Lys Leu Leu Glu Gly His Ser Asn Lys Pro Glu Gln Asp Gly Ser			
1025	1030	1035	1040
Asp Gln Ala Pro Asp Lys Lys Pro Glu Ala Lys Pro Glu Gln Asp Gly			
1045	1050	1055	
Ser Gly Gln Thr Pro Asp Lys Lys Glu Thr Lys Pro Glu Lys Asp			
1060	1065	1070	
Ser Ser Gly Gln Thr Pro Gly Lys Thr Pro Gln Lys Gly Gln Ser Ser			
1075	1080	1085	
Arg Thr Leu Glu Lys Arg Ser Ser Lys Arg Ala Leu Ala Thr Lys Ala			
1090	1095	1100	
Ser Thr Arg Asp Gln Leu Pro Thr Thr Asn Asp Lys Asp Thr Asn Arg			
1105	1110	1115	1120
Leu His Leu Leu Lys Leu Val Met Thr Thr Phe Phe Leu Gly			
1125		1130	

<210> 28
<211> 1109
<212> PRT
<213> Streptococcus agalactiae

<400> 28			
Gin Ser Asp Ile Lys Ala Asn Thr Val Thr Glu Asp Thr Pro Ala Thr			
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Glu Gln Ala Val Glu Pro Pro Gln Pro Ile Ala Val Ser Glu Glu Ser			
20	25	30	
Arg Ser Ser Lys Glu Thr Lys Thr Ser Gln Thr Pro Ser Asp Val Gly			
35	40	45	
Glu Thr Val Ala Asp Asp Ala Asn Asp Leu Ala Pro Gln Ala Pro Ala			
50	55	60	
Lys Thr Ala Asp Thr Pro Ala Thr Ser Lys Ala Thr Ile Arg Asp Leu			
65	70	75	80
Asn Asp Pro Ser His Val Lys Thr Leu Gln Glu Lys Ala Gly Lys Gly			
85	90	95	
Ala Gly Thr Val Val Ala Val Ile Asp Ala Gly Phe Asp Lys Asn His			
100	105	110	
Glu Ala Trp Arg Leu Thr Asp Lys Thr Lys Ala Arg Tyr Gln Ser Lys			
115	120	125	
Glu Asn Leu Glu Lys Ala Lys Lys Glu His Gly Ile Thr Tyr Gly Glu			
130	135	140	
Trp Val Asn Asp Lys Val Ala Tyr Tyr His Asp Tyr Ser Lys Asp Gly			
145	150	155	160
Lys Asn Ala Val Asp Gln Glu His Gly Thr His Val Ser Gly Ile Leu			
165	170	175	
Ser Gly Asn Ala Pro Ser Glu Met Lys Glu Pro Tyr Arg Leu Glu Gly			
180	185	190	
Ala Met Pro Glu Ala Gln Leu Leu Met Arg Val Glu Ile Val Asn			
195	200	205	
Gly Leu Ala Asp Tyr Ala Arg Asn Tyr Ala Gln Ala Ile Arg Asp Ala			
210	215	220	
Val Asn Leu Gly Ala Lys Val Ile Asn Met Ser Phe Gly Asn Ala Ala			

225	230	235	240
Leu Ala Tyr Ala Asn Leu Pro Asp Glu Thr Lys Lys Ala Phe Asp Tyr			
245	250	255	
Ala Lys Ser Lys Gly Val Ser Ile Val Thr Ser Ala Gly Asn Asp Ser			
260	265	270	
Ser Phe Gly Gly Lys Pro Arg Leu Pro Leu Ala Asp His Pro Asp Tyr			
275	280	285	
Gly Val Val Gly Thr Pro Ala Ala Ala Asp Ser Thr Leu Thr Val Ala			
290	295	300	
Ser Tyr Ser Pro Asp Lys Gln Leu Thr Glu Thr Ala Thr Val Lys Thr			
305	310	315	320
Asp Asp His Gln Asp Lys Glu Met Pro Val Ile Ser Thr Asn Arg Phe			
325	330	335	
Glu Pro Asn Lys Ala Tyr Asp Tyr Ala Tyr Ala Asn Arg Gly Thr Lys			
340	345	350	
Glu Asp Asp Phe Lys Asp Val Glu Gly Lys Ile Ala Leu Ile Glu Arg			
355	360	365	
Gly Asp Ile Asp Phe Lys Asp Lys Ile Ala Asn Ala Lys Lys Ala Gly			
370	375	380	
Ala Val Gly Val Leu Ile Tyr Asp Asn Gln Asp Lys Gly Phe Pro Ile			
385	390	395	400
Glu Leu Pro Asn Val Asp Gln Met Pro Ala Ala Phe Ile Ser Arg Arg			
405	410	415	
Asp Gly Leu Leu Lys Asp Asn Pro Pro Lys Thr Ile Thr Phe Asn			
420	425	430	
Ala Thr Pro Lys Val Leu Pro Thr Ala Ser Gly Thr Lys Leu Ser Arg			
435	440	445	
Phe Ser Ser Trp Gly Leu Thr Ala Asp Gly Asn Ile Lys Pro Asp Ile			
450	455	460	
Ala Ala Pro Gly Gln Asp Ile Leu Ser Ser Val Ala Asn Asn Lys Tyr			
465	470	475	480
Ala Lys Leu Ser Gly Thr Ser Met Ser Ala Pro Leu Val Ala Gly Ile			
485	490	495	
Met Gly Leu Leu Lys Gln Tyr Glu Thr Gln Tyr Pro Asp Met Thr			
500	505	510	
Pro Ser Glu Arg Leu Asp Leu Ala Lys Lys Val Leu Met Ser Ser Ala			
515	520	525	
Thr Ala Leu Tyr Asp Glu Asp Glu Lys Ala Tyr Phe Ser Pro Arg Gln			
530	535	540	
Gln Gly Ala Gly Ala Val Asp Ala Lys Lys Ala Ser Ala Ala Thr Met			
545	550	555	560
Tyr Val Thr Asp Lys Asp Asn Thr Ser Ser Lys Val His Leu Asn Asn			
565	570	575	
Val Ser Asp Lys Phe Glu Val Thr Val Thr Val His Asn Lys Ser Asp			
580	585	590	
Lys Pro Gln Glu Leu Tyr Tyr Gln Val Thr Val Gln Thr Asp Lys Val			
595	600	605	
Asp Gly Lys His Phe Ala Leu Ala Pro Lys Ala Leu Tyr Glu Thr Ser			
610	615	620	
Trp Gln Lys Ile Thr Ile Pro Ala Asn Ser Ser Lys Gln Val Thr Val			
625	630	635	640
Pro Ile Asp Ala Ser Arg Phe Ser Lys Asp Leu Leu Ala Gln Met Lys			
645	650	655	
Asn Gly Tyr Phe Leu Glu Gly Phe Val Arg Phe Lys Gln Asp Pro Thr			
660	665	670	

Lys Glu Glu Leu Met Ser Ile Pro Tyr Ile Gly Phe Arg Gly Asp Phe
 675 680 685
 Gly Asn Leu Ser Ala Leu Glu Lys Pro Ile Tyr Asp Ser Lys Asp Gly
 690 695 700
 Ser Ser Tyr Tyr His Glu Ala Asn Ser Asp Ala Lys Asp Gln Leu Asp
 705 710 715 720
 Gly Asp Gly Leu Gln Phe Tyr Ala Leu Lys Asn Asn Phe Thr Ala Leu
 725 730 735
 Thr Thr Glu Ser Asn Pro Trp Thr Ile Ile Lys Ala Val Lys Glu Gly
 740 745 750
 Val Glu Asn Ile Glu Asp Ile Glu Ser Ser Glu Ile Thr Glu Thr Ile
 755 760 765
 Phe Ala Gly Thr Phe Ala Lys Gln Asp Asp Asp Ser His Tyr Tyr Ile
 770 775 780
 His Arg His Ala Asn Gly Lys Pro Tyr Ala Ala Ile Ser Pro Asn Gly
 785 790 795 800
 Asp Gly Asn Arg Asp Tyr Val Gln Phe Gln Gly Thr Phe Leu Arg Asn
 805 810 815
 Ala Lys Asn Leu Val Ala Glu Val Leu Asp Lys Glu Gly Asn Val Val
 820 825 830
 Trp Thr Ser Glu Val Thr Glu Gln Val Val Lys Asn Tyr Asn Asn Asp
 835 840 845
 Leu Ala Ser Thr Leu Gly Ser Thr Arg Phe Glu Lys Thr Arg Trp Asp
 850 855 860
 Gly Lys Asp Lys Asp Gly Lys Val Val Ala Asn Gly Thr Tyr Thr Tyr
 865 870 875 880
 Arg Val Arg Tyr Thr Pro Ile Ser Ser Gly Ala Lys Glu Gln His Thr
 885 890 895
 Asp Phe Asp Val Ile Val Asp Asn Thr Thr Pro Glu Val Ala Thr Ser
 900 905 910
 Ala Thr Phe Ser Thr Glu Asp Ser Arg Leu Thr Leu Ala Ser Lys Pro
 915 920 925
 Lys Thr Ser Gln Pro Val Tyr Arg Glu Arg Ile Ala Tyr Thr Tyr Met
 930 935 940
 Asp Glu Asp Leu Pro Thr Thr Glu Tyr Ile Ser Pro Asn Glu Asp Gly
 945 950 955 960
 Thr Phe Thr Leu Pro Glu Glu Ala Glu Thr Met Glu Gly Ala Thr Val
 965 970 975
 Pro Leu Lys Met Ser Asp Phe Thr Tyr Val Val Glu Asp Met Ala Gly
 980 985 990
 Asn Ile Thr Tyr Thr Pro Val Thr Lys Leu Leu Glu Gly His Ser Asn
 995 1000 1005
 Lys Pro Glu Gln Asp Gly Ser Asp Gln Ala Pro Asp Lys Lys Pro Glu
 1010 1015 1020
 Ala Lys Pro Glu Gln Asp Gly Ser Gly Gln Thr Pro Asp Lys Lys Lys
 1025 1030 1035 1040
 Glu Thr Lys Pro Glu Lys Asp Ser Ser Gly Gln Thr Pro Gly Lys Thr
 1045 1050 1055
 Pro Gln Lys Gly Gln Ser Ser Arg Thr Leu Glu Lys Arg Ser Ser Lys
 1060 1065 1070
 Arg Ala Leu Ala Thr Lys Ala Ser Thr Arg Asp Gln Leu Pro Thr Thr
 1075 1080 1085
 Asn Asp Lys Asp Thr Asn Arg Leu His Leu Leu Lys Leu Val Met Thr
 1090 1095 1100
 Thr Phe Phe Leu Gly

1105

<210> 29
<211> 1103
<212> PRT

<213> Streptococcus agalactiae

<400> 29
Met Arg Lys Lys Gln Lys Leu Pro Phe Asp Lys Leu Ala Ile Ala Leu
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Ile Ser Thr Ser Ile Leu Leu Asn Ala Gln Ser Asp Ile Lys Ala Asn
20 25 30
Thr Val Thr Glu Asp Thr Pro Ala Thr Glu Gln Ala Val Glu Pro Pro
35 40 45
Gln Pro Ile Ala Val Ser Glu Glu Ser Arg Ser Ser Lys Glu Thr Lys
50 55 60
Thr Ser Gln Thr Pro Ser Asp Val Gly Glu Thr Val Ala Asp Asp Ala
65 70 75 80
Asn Asp Leu Ala Pro Gln Ala Pro Ala Lys Thr Ala Asp Thr Pro Ala
85 90 95
Thr Ser Lys Ala Thr Ile Arg Asp Leu Asn Asp Pro Ser His Val Lys
100 105 110
Thr Leu Gln Glu Lys Ala Gly Lys Gly Ala Gly Thr Val Val Ala Val
115 120 125
Ile Asp Ala Gly Phe Asp Lys Asn His Glu Ala Trp Arg Leu Thr Asp
130 135 140
Lys Thr Lys Ala Arg Tyr Gln Ser Lys Glu Asn Leu Glu Lys Ala Lys
145 150 155 160
Lys Glu His Gly Ile Thr Tyr Gly Glu Trp Val Asn Asp Lys Val Ala
165 170 175
Tyr Tyr His Asp Tyr Ser Lys Asp Gly Lys Asn Ala Val Asp Gln Glu
180 185 190
His Gly Thr His Val Ser Gly Ile Leu Ser Gly Asn Ala Pro Ser Glu
195 200 205
Met Lys Glu Pro Tyr Arg Leu Glu Gly Ala Met Pro Glu Ala Gln Leu
210 215 220
Leu Leu Met Arg Val Glu Ile Val Asn Gly Leu Ala Asp Tyr Ala Arg
225 230 235 240
Asn Tyr Ala Gln Ala Ile Arg Asp Ala Val Asn Leu Gly Ala Lys Val
245 250 255
Ile Asn Met Ser Phe Gly Asn Ala Ala Leu Ala Tyr Ala Asn Leu Pro
260 265 270
Asp Glu Thr Lys Lys Ala Phe Asp Tyr Ala Lys Ser Lys Gly Val Ser
275 280 285
Ile Val Thr Ser Ala Gly Asn Asp Ser Ser Phe Gly Gly Lys Pro Arg
290 295 300 320
Leu Pro Leu Ala Asp His Pro Asp Tyr Gly Val Val Gly Thr Pro Ala
305 310 315 325
Ala Ala Asp Ser Thr Leu Thr Val Ala Ser Tyr Ser Pro Asp Lys Gln
325 330 335
Leu Thr Glu Thr Ala Thr Val Lys Thr Asp Asp His Gln Asp Lys Glu
340 345 350
Met Pro Val Ile Ser Thr Asn Arg Phe Glu Pro Asn Lys Ala Tyr Asp
355 360 365
Tyr Ala Tyr Ala Asn Arg Gly Thr Lys Glu Asp Asp Phe Lys Asp Val

370	375	380
Glu	Gly Lys Ile Ala Leu Ile Glu Arg Gly Asp Ile Asp Phe Lys Asp	
385	390	395
Lys	Ile Ala Asn Ala Lys Lys Ala Gly Ala Val Gly Val Leu Ile Tyr	400
	405	410
Asp	Asn Gln Asp Lys Gly Phe Pro Ile Glu Leu Pro Asn Val Asp Gln	
	420	425
Met	Pro Ala Ala Phe Ile Ser Arg Arg Asp Gly Leu Leu Leu Lys Asp	
	435	440
Asn	Pro Pro Lys Thr Ile Thr Phe Asn Ala Thr Pro Lys Val Leu Pro	
	450	455
Thr	Ala Ser Gly Thr Lys Leu Ser Arg Phe Ser Ser Trp Gly Leu Thr	
	465	470
Ala	Asp Gly Asn Ile Lys Pro Asp Ile Ala Ala Pro Gly Gln Asp Ile	
	485	490
Leu	Ser Ser Val Ala Asn Asn Lys Tyr Ala Lys Leu Ser Gly Thr Ser	
	500	505
Met	Ser Ala Pro Leu Val Ala Gly Ile Met Gly Leu Leu Gln Lys Gln	
	515	520
Tyr	Glu Thr Gln Tyr Pro Asp Met Thr Pro Ser Glu Arg Leu Asp Leu	
	530	535
Ala	Lys Lys Val Leu Met Ser Ser Ala Thr Ala Leu Tyr Asp Glu Asp	
	545	550
Glu	Lys Ala Tyr Phe Ser Pro Arg Gln Gln Gly Ala Gly Ala Val Asp	
	565	570
Ala	Lys Lys Ala Ser Ala Ala Thr Met Tyr Val Thr Asp Lys Asp Asn	
	580	585
Thr	Ser Ser Lys Val His Leu Asn Asn Val Ser Asp Lys Phe Glu Val	
	595	600
Thr	Val Thr Val His Asn Lys Ser Asp Lys Pro Gln Glu Leu Tyr Tyr	
	610	615
Gln	Val Thr Val Gln Thr Asp Lys Val Asp Gly Lys His Phe Ala Leu	
	625	630
Ala	Pro Lys Ala Leu Tyr Glu Thr Ser Trp Gln Lys Ile Thr Ile Pro	
	645	650
Ala	Asn Ser Ser Lys Gln Val Thr Val Pro Ile Asp Ala Ser Arg Phe	
	660	665
Ser	Lys Asp Leu Leu Ala Gln Met Lys Asn Gly Tyr Phe Leu Glu Gly	
	675	680
Phe	Val Arg Phe Lys Gln Asp Pro Thr Lys Glu Glu Leu Met Ser Ile	
	690	695
Pro	Tyr Ile Gly Phe Arg Gly Asp Phe Gly Asn Leu Ser Ala Leu Glu	
	705	710
Lys	Pro Ile Tyr Asp Ser Lys Asp Gly Ser Ser Tyr Tyr His Glu Ala	
	725	730
Asn	Ser Asp Ala Lys Asp Gln Leu Asp Gly Asp Gly Leu Gln Phe Tyr	
	740	745
Ala	Leu Lys Asn Asn Phe Thr Ala Leu Thr Thr Glu Ser Asn Pro Trp	
	755	760
Thr	Ile Ile Lys Ala Val Lys Glu Gly Val Glu Asn Ile Glu Asp Ile	
	770	775
Glu	Ser Ser Glu Ile Thr Glu Thr Ile Phe Ala Gly Thr Phe Ala Lys	
	785	790
Gln	Asp Asp Asp Ser His Tyr Tyr Ile His Arg His Ala Asn Gly Lys	800

805	810	815
Pro Tyr Ala Ala Ile Ser Pro Asn Gly Asp Gly Asn Arg Asp Tyr Val		
820	825	830
Gln Phe Gln Gly Thr Phe Leu Arg Asn Ala Lys Asn Leu Val Ala Glu		
835	840	845
Val Leu Asp Lys Glu Gly Asn Val Val Trp Thr Ser Glu Val Thr Glu		
850	855	860
Gln Val Val Lys Asn Tyr Asn Asn Asp Leu Ala Ser Thr Leu Gly Ser		
865	870	875
Thr Arg Phe Glu Lys Thr Arg Trp Asp Gly Lys Asp Lys Asp Gly Lys		
885	890	895
Val Val Ala Asn Gly Thr Tyr Thr Tyr Arg Val Arg Tyr Thr Pro Ile		
900	905	910
Ser Ser Gly Ala Lys Glu Gln His Thr Asp Phe Asp Val Ile Val Asp		
915	920	925
Asn Thr Thr Pro Glu Val Ala Thr Ser Ala Thr Phe Ser Thr Glu Asp		
930	935	940
Ser Arg Leu Thr Leu Ala Ser Lys Pro Lys Thr Ser Gln Pro Val Tyr		
945	950	955
Arg Glu Arg Ile Ala Tyr Thr Tyr Met Asp Glu Asp Leu Pro Thr Thr		
965	970	975
Glu Tyr Ile Ser Pro Asn Glu Asp Gly Thr Phe Thr Leu Pro Glu Glu		
980	985	990
Ala Glu Thr Met Glu Gly Ala Thr Val Pro Leu Lys Met Ser Asp Phe		
995	1000	1005
Thr Tyr Val Val Glu Asp Met Ala Gly Asn Ile Thr Tyr Thr Pro Val		
1010	1015	1020
Thr Lys Leu Leu Glu Gly His Ser Asn Lys Pro Glu Gln Asp Gly Ser		
1025	1030	1035
Asp Gln Ala Pro Asp Lys Lys Pro Glu Ala Lys Pro Glu Gln Asp Gly		
1045	1050	1055
Ser Gly Gln Thr Pro Asp Lys Lys Pro Glu Thr Lys Pro Glu Lys Asp		
1060	1065	1070
Ser Ser Gly Gln Thr Pro Gly Lys Thr Pro Gln Lys Gly Gln Ser Ser		
1075	1080	1085
Arg Thr Leu Glu Lys Arg Ser Ser Lys Arg Ala Leu Ala Thr Lys		
1090	1095	1100

<210> 30

<211> 1078

<212> PRT

<213> Streptococcus agalactiae

<400> 30

Gln Ser Asp Ile Lys Ala Asn Thr Val Thr Glu Asp Thr Pro Ala Thr		
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Glut Gln Ala Val Glu Pro Pro Gln Pro Ile Ala Val Ser Glu Glu Ser		
20	25	30
Arg Ser Ser Lys Glu Thr Lys Thr Ser Gln Thr Pro Ser Asp Val Gly		
35	40	45
Glu Thr Val Ala Asp Asp Ala Asn Asp Leu Ala Pro Gln Ala Pro Ala		
50	55	60
Lys Thr Ala Asp Thr Pro Ala Thr Ser Lys Ala Thr Ile Arg Asp Leu		
65	70	75
		80

Asn	Asp	Pro	Ser	His	Val	Lys	Thr	Leu	Gln	Glu	Lys	Ala	Gly	Lys	Gly	
				85		90					95					
Ala	Gly	Thr	Val	Val	Ala	Val	Ile	Asp	Ala	Gly	Phe	Asp	Lys	Asn	His	
				100		105					110					
Glu	Ala	Trp	Arg	Leu	Thr	Asp	Lys	Thr	Lys	Ala	Arg	Tyr	Gln	Ser	Lys	
		115				120					125					
Glu	Asn	Leu	Glu	Lys	Ala	Lys	Lys	Glu	His	Gly	Ile	Thr	Tyr	Gly	Glu	
		130				135					140					
Trp	Val	Asn	Asp	Lys	Val	Ala	Tyr	Tyr	His	Asp	Tyr	Ser	Lys	Asp	Gly	
145				150			155				160					
Lys	Asn	Ala	Val	Asp	Gln	Glu	His	Gly	Thr	His	Val	Ser	Gly	Ile	Leu	
				165			170				175					
Ser	Gly	Asn	Ala	Pro	Ser	Glu	Met	Lys	Glu	Pro	Tyr	Arg	Leu	Glu	Gly	
				180			185				190					
Ala	Met	Pro	Glu	Ala	Gln	Leu	Leu	Met	Arg	Val	Glu	Ile	Val	Asn		
				195			200				205					
Gly	Leu	Ala	Asp	Tyr	Ala	Arg	Asn	Tyr	Ala	Gln	Ala	Ile	Arg	Asp	Ala	
				210			215				220					
Val	Asn	Leu	Gly	Ala	Lys	Val	Ile	Asn	Met	Ser	Phe	Gly	Asn	Ala	Ala	
225					230					235			240			
Leu	Ala	Tyr	Ala	Asn	Leu	Pro	Asp	Glu	Thr	Lys	Lys	Ala	Phe	Asp	Tyr	
					245			250				255				
Ala	Lys	Ser	Lys	Gly	Val	Ser	Ile	Val	Thr	Ser	Ala	Gly	Asn	Asp	Ser	
				260			265				270					
Ser	Phe	Gly	Gly	Lys	Pro	Arg	Leu	Pro	Leu	Ala	Asp	His	Pro	Asp	Tyr	
				275			280				285					
Gly	Val	Val	Gly	Thr	Pro	Ala	Ala	Ala	Asp	Ser	Thr	Leu	Thr	Val	Ala	
				290			295				300					
Ser	Tyr	Ser	Pro	Asp	Lys	Gln	Leu	Thr	Glu	Thr	Ala	Thr	Val	Lys	Thr	
305					310				315			320				
Asp	Asp	His	Gln	Asp	Lys	Glu	Met	Pro	Val	Ile	Ser	Thr	Asn	Arg	Phe	
				325			330				335					
Glu	Pro	Asn	Lys	Ala	Tyr	Asp	Tyr	Ala	Tyr	Ala	Asn	Arg	Gly	Thr	Lys	
				340			345				350					
Glu	Asp	Asp	Phe	Lys	Asp	Val	Glu	Gly	Lys	Ile	Ala	Leu	Ile	Glu	Arg	
				355			360				365					
Gly	Asp	Ile	Asp	Phe	Lys	Asp	Lys	Ile	Ala	Asn	Ala	Lys	Lys	Ala	Gly	
				370			375				380					
Ala	Val	Gly	Val	Leu	Ile	Tyr	Asp	Asn	Gln	Asp	Lys	Gly	Phe	Pro	Ile	
385					390				395			400				
Gl	u	Leu	Pro	Asn	Val	Asp	Gln	Met	Pro	Ala	Ala	Phe	Ile	Ser	Arg	Arg
					405			410			415					
Asp	Gly	Leu	Leu	Leu	Lys	Asp	Asn	Pro	Pro	Lys	Thr	Ile	Thr	Phe	Asn	
				420			425				430					
Ala	Thr	Pro	Lys	Val	Leu	Pro	Thr	Ala	Ser	Gly	Thr	Lys	Leu	Ser	Arg	
				435			440				445					
Phe	Ser	Ser	Trp	Gly	Leu	Thr	Ala	Asp	Gly	Asn	Ile	Lys	Pro	Asp	Ile	
450					455			460								
Ala	Ala	Pro	Gly	Gln	Asp	Ile	Leu	Ser	Ser	Val	Ala	Asn	Asn	Lys	Tyr	
465					470			475				480				
Ala	Lys	Leu	Ser	Gly	Thr	Ser	Met	Ser	Ala	Pro	Leu	Val	Ala	Gly	Ile	
					485			490			495					
Met	Gly	Leu	Leu	Gln	Lys	Gln	Tyr	Glu	Thr	Gln	Tyr	Pro	Asp	Met	Thr	
				500			505				510					
Pro	Ser	Glu	Arg	Leu	Asp	Leu	Ala	Lys	Lys	Val	Leu	Met	Ser	Ser	Ala	

515	520	525
Thr Ala Leu Tyr Asp Glu Asp Glu Lys Ala Tyr Phe Ser Pro Arg Gln		
530	535	540
Gln Gly Ala Gly Ala Val Asp Ala Lys Lys Ala Ser Ala Ala Thr Met		
545	550	555
Tyr Val Thr Asp Lys Asp Asn Thr Ser Ser Lys Val His Leu Asn Asn		
555	570	575
Val Ser Asp Lys Phe Glu Val Thr Val Thr Val His Asn Lys Ser Asp		
580	585	590
Lys Pro Gln Glu Leu Tyr Tyr Gln Val Thr Val Gln Thr Asp Lys Val		
595	600	605
Asp Gly Lys His Phe Ala Leu Ala Pro Lys Ala Leu Tyr Glu Thr Ser		
610	615	620
Trp Gln Lys Ile Thr Ile Pro Ala Asn Ser Ser Lys Gln Val Thr Val		
625	630	635
Pro Ile Asp Ala Ser Arg Phe Ser Lys Asp Leu Leu Ala Gln Met Lys		
645	650	655
Asn Gly Tyr Phe Leu Glu Gly Phe Val Arg Phe Lys Gln Asp Pro Thr		
660	665	670
Lys Glu Glu Leu Met Ser Ile Pro Tyr Ile Gly Phe Arg Gly Asp Phe		
675	680	685
Gly Asn Leu Ser Ala Leu Glu Lys Pro Ile Tyr Asp Ser Lys Asp Gly		
690	695	700
Ser Ser Tyr Tyr His Glu Ala Asn Ser Asp Ala Lys Asp Gln Leu Asp		
705	710	715
Gly Asp Gly Leu Gln Phe Tyr Ala Leu Lys Asn Asn Phe Thr Ala Leu		
725	730	735
Thr Thr Glu Ser Asn Pro Trp Thr Ile Ile Lys Ala Val Lys Glu Gly		
740	745	750
Val Glu Asn Ile Glu Asp Ile Glu Ser Ser Glu Ile Thr Glu Thr Ile		
755	760	765
Phe Ala Gly Thr Phe Ala Lys Gln Asp Asp Asp Ser His Tyr Tyr Ile		
770	775	780
His Arg His Ala Asn Gly Lys Pro Tyr Ala Ala Ile Ser Pro Asn Gly		
785	790	795
Asp Gly Asn Arg Asp Tyr Val Gln Phe Gln Gly Thr Phe Leu Arg Asn		
805	810	815
Ala Lys Asn Leu Val Ala Glu Val Leu Asp Lys Glu Gly Asn Val Val		
820	825	830
Trp Thr Ser Glu Val Thr Glu Gln Val Val Lys Asn Tyr Asn Asn Asp		
835	840	845
Leu Ala Ser Thr Leu Gly Ser Thr Arg Phe Glu Lys Thr Arg Trp Asp		
850	855	860
Gly Lys Asp Lys Asp Gly Lys Val Val Ala Asn Gly Thr Tyr Thr Tyr		
865	870	875
Arg Val Arg Tyr Thr Pro Ile Ser Ser Gly Ala Lys Glu Gln His Thr		
885	890	895
Asp Phe Asp Val Ile Val Asp Asn Thr Thr Pro Glu Val Ala Thr Ser		
900	905	910
Ala Thr Phe Ser Thr Glu Asp Ser Arg Leu Thr Leu Ala Ser Lys Pro		
915	920	925
Lys Thr Ser Gln Pro Val Tyr Arg Glu Arg Ile Ala Tyr Thr Tyr Met		
930	935	940

Asp	Glu	Asp	Leu	Pro	Thr	Thr	Glu	Tyr	Ile	Ser	Pro	Asn	Glu	Asp	Gly
945															960
Thr	Phe	Thr	Leu	Pro	Glu	Glu	Ala	Glu	Thr	Met	Glu	Gly	Ala	Thr	Val
															975
Pro	Leu	Lys	Met	Ser	Asp	Phe	Thr	Tyr	Val	Val	Glu	Asp	Met	Ala	Gly
															990
Asn	Ile	Thr	Tyr	Thr	Pro	Val	Thr	Lys	Leu	Leu	Glu	Gly	His	Ser	Asn
															1005
Lys	Pro	Glu	Gln	Asp	Gly	Ser	Asp	Gln	Ala	Pro	Asp	Lys	Lys	Pro	Glu
															1020
Ala	Lys	Pro	Glu	Gln	Asp	Gly	Ser	Gly	Gln	Thr	Pro	Asp	Lys	Lys	lys
															1040
Glu	Thr	Lys	Pro	Glu	Lys	Asp	Ser	Ser	Gly	Gln	Thr	Pro	Gly	Lys	Thr
															1055
Pro	Gln	Lys	Gly	Gln	Ser	Ser	Arg	Thr	Leu	Glu	Lys	Arg	Ser	Ser	Lys
															1070
Arg	Ala	Leu	Ala	Thr	Lys										
															1075

<210> 31

<211> 1365

<212> DNA

<213> Streptococcus agalactiae

<400> 31

atggacgag	taatgaaaac	aataacaaca	tttgaaaata	aaaaagttt	agtcccttggt		60
ttagcacat	ctggagaagc	tgctgcacgt	ttgttagcta	agtaggagc	aatagtgcac		120
gttaatgtat	gcaaaccatt	tgatgaaaat	ccaacagcac	agtctttgtt	ggaagagggt		180
attnaaatgg	tttgggttag	tcatccctta	gaatttgtta	ataggattt	ttgttacatgt		240
attnaaatcc	caggaaatcc	tataacaat	ctttaggtca	aaaaagcatt	agaaaaacaa		300
atcccgttt	tgactgaagt	ggaatntagca	tacttagttt	cagaatctca	gctaataggt		360
attacaggtt	ctaaagggaa	aacgacaacg	acaacgatga	tttgcagaatgt	cttaaatgtct		420
ggagggtcaga	gagggttgtt	atcggttgc	atcggttgc	ctgtctgt	agttgttcag		480
gctgcgtat	ataaaatgtat	tctatgtat	gaattatcaa	gttttcagct	aatgggagtt		540
aaggaaatcc	gtccatccat	tgcaatgtt	actaaatttaa	tgccaaactca	tttagatgtt		600
catgggttctt	tgttgcatttt	atgttgcata	atatggaaata	tccaaatctca	aatgtcttca		660
tctgttcttt	tgttgcatttt	tttatgttca	ggtattttctaa	aagagtttgc	taaaactact		720
aaaggaaacaa	tcgttgcatttt	ctctactatc	ggaaaatgttgc	atgggtgtttca	ctgtacaagac		780
aaaggaaatcc	tctatataaagg	ggagaatattt	atgtcgtatgt	atgacattttgc	tgtccccaggaa		840
agccataacg	tagagaatgc	tctagcaact	attgcgttgc	cttaacttgc	tgttatcgt		900
aatcaatgtt	ttagagaaaac	tttaaagcaat	ttttgggttg	ttaaacacccg	cttgcataatca		960
ctcggtaagg	tccatgttat	tagtttctat	aacgacgac	agtcaactaa	tatattggca		1020
actcaaaaat	cattatctgg	ctttgataat	actaaatgtt	tcctaaatgtc	aggagggttt		1080
gatcggttca	atgatgttgc	tgttgcatttt	ccatgtatca	ctggacttta	acatatgttt		1140
gttttagggg	aatcggttgc	tccgtataaa	ctgtctgt	aaaaagcagg	agtaatctat		1200
agcgtatgtt	tagatgttgc	atgtcggttgc	cataaaatgtt	atgaggttgc	acaacaggcgc		1260
gtatgttgc	tgttgcatttt	tgttgcatttt	tttgcgttgc	tttgcgttgc	tttgcgttgc		1320
cgtgggtat	aatttcatttt	tacttttttttt	tttttttttttt	tttttttttttt	tttttttttttt		1365

<210> 32

<211> 455

<212> PRT

<213> Streptococcus agalactiae

<400> 32
Met Gly Arg Val Met Lys Thr Ile Thr Phe Glu Asn Lys Lys Val
1 5 10 15
Leu Val Leu Gly Leu Ala Arg Ser Gly Glu Ala Ala Ala Arg Leu Leu
20 25 30
Ala Lys Leu Gly Ala Ile Val Thr Val Asn Asp Gly Lys Pro Phe Asp
35 40 45
Glu Asn Pro Thr Ala Gln Ser Leu Leu Glu Gly Ile Lys Val Val
50 55 60
Cys Gly Ser His Pro Leu Glu Leu Leu Asp Glu Asp Phe Cys Tyr Met
65 70 75 80
Ile Lys Asn Pro Gly Ile Pro Tyr Asn Asn Pro Met Val Lys Lys Ala
85 90 95
Leu Glu Lys Gln Ile Pro Val Leu Thr Glu Val Glu Leu Ala Tyr Leu
100 105 110
Val Ser Glu Ser Gln Leu Ile Gly Ile Thr Gly Ser Asn Gly Lys Thr
115 120 125
Thr Thr Thr Met Ile Ala Glu Val Leu Asn Ala Gly Gly Gln Arg
130 135 140
Gly Leu Leu Ala Gly Asn Ile Gly Phe Pro Ala Ser Glu Val Val Gln
145 150 155 160
Ala Ala Asn Asp Lys Asp Thr Leu Val Met Glu Leu Ser Ser Phe Gln
165 170 175
Leu Met Gly Val Lys Glu Phe Arg Pro His Ile Ala Val Ile Thr Asn
180 185 190
Leu Met Pro Thr His Leu Asp Tyr His Gly Ser Phe Glu Asp Tyr Val
195 200 205
Ala Ala Lys Trp Asn Ile Gln Asn Gln Met Ser Ser Asp Ser Phe Leu
210 215 220
Val Leu Asn Phe Asn Gln Gly Ile Ser Lys Glu Leu Ala Lys Thr Thr
225 230 235 240
Lys Ala Thr Ile Val Pro Phe Ser Thr Thr Glu Lys Val Asp Gly Ala
245 250 255
Tyr Val Gln Asp Lys Gln Leu Phe Tyr Lys Gly Glu Asn Ile Met Ser
260 265 270
Val Asp Asp Ile Gly Val Pro Gly Ser His Asn Val Glu Asn Ala Leu
275 280 285
Ala Thr Ile Ala Val Ala Lys Leu Ala Gly Ile Ser Asn Gln Val Ile
290 295 300
Arg Glu Thr Leu Ser Asn Phe Gly Gly Val Lys His Arg Leu Gln Ser
305 310 315 320
Leu Gly Lys Val His Gly Ile Ser Phe Tyr Asn Asp Ser Lys Ser Thr
325 330 335
Asn Ile Leu Ala Thr Gln Lys Ala Leu Ser Gly Phe Asp Asn Thr Lys
340 345 350
Val Ile Leu Ile Ala Gly Gly Leu Asp Arg Gly Asn Glu Phe Asp Glu
355 360 365
Leu Ile Pro Asp Ile Thr Gly Leu Lys His Met Val Val Leu Gly Glu
370 375 380
Ser Ala Ser Arg Val Lys Arg Ala Ala Gln Lys Ala Gly Val Thr Tyr
385 390 395 400
Ser Asp Ala Leu Asp Val Arg Asp Ala Val His Lys Ala Tyr Glu Val
405 410 415
Ala Gln Gln Gly Asp Val Ile Leu Leu Ser Pro Ala Asn Ala Ser Trp
420 425 430

Asp Met Tyr Lys Asn Phe Glu Val Arg Gly Asp Glu Phe Ile Asp Thr
 435 440 445
 Phe Glu Ser Leu Arg Gly Glu
 450 455

<210> 33
 <211> 448
 <212> PRT
 <213> Streptococcus agalactiae

<400> 33
 Ile Thr Thr Phe Glu Asn Lys Lys Val Leu Val Leu Gly Leu Ala Arg
 1 5 10 15
 Ser Gly Glu Ala Ala Ala Arg Leu Leu Ala Lys Leu Gly Ala Ile Val
 20 25 30

Thr Val Asn Asp Gly Lys Pro Phe Asp Glu Asn Pro Thr Ala Gln Ser
 35 40 45

Leu Leu Glu Glu Gly Ile Lys Val Val Cys Gly Ser His Pro Leu Glu
 50 55 60

Leu Leu Asp Glu Asp Phe Cys Tyr Met Ile Lys Asn Pro Gly Ile Pro
 65 70 75 80

Tyr Asn Asn Pro Met Val Lys Lys Ala Leu Glu Lys Gln Ile Pro Val
 85 90 95

Leu Thr Glu Val Glu Leu Ala Tyr Leu Val Ser Glu Ser Gln Leu Ile
 100 105 110

Gly Ile Thr Gly Ser Asn Gly Lys Thr Thr Thr Met Ile Ala
 115 120 125

Glu Val Leu Asn Ala Gly Gly Gln Arg Gly Leu Leu Ala Gly Asn Ile
 130 135 140

Gly Phe Pro Ala Ser Glu Val Val Gln Ala Ala Asn Asp Lys Asp Thr
 145 150 155 160

Leu Val Met Glu Leu Ser Ser Phe Gln Leu Met Gly Val Lys Glu Phe
 165 170 175

Arg Pro His Ile Ala Val Ile Thr Asn Leu Met Pro Thr His Leu Asp
 180 185 190

Tyr His Gly Ser Phe Glu Asp Tyr Val Ala Ala Lys Trp Asn Ile Gln
 195 200 205

Asn Gln Met Ser Ser Ser Asp Phe Leu Val Leu Asn Phe Asn Gln Gly
 210 215 220

Ile Ser Lys Glu Leu Ala Lys Thr Thr Lys Ala Thr Ile Val Pro Phe
 225 230 235 240

Ser Thr Thr Glu Lys Val Asp Gly Ala Tyr Val Gln Asp Lys Gln Leu
 245 250 255

Phe Tyr Lys Gly Glu Asn Ile Met Ser Val Asp Asp Ile Gly Val Pro
 260 265 270

Gly Ser His Asn Val Glu Asn Ala Leu Ala Thr Ile Ala Val Ala Lys
 275 280 285

Leu Ala Gly Ile Ser Asn Gln Val Ile Arg Glu Thr Leu Ser Asn Phe
 290 295 300

Gly Gly Val Lys His Arg Leu Gln Ser Leu Gly Lys Val His Gly Ile
 305 310 315 320

Ser Phe Tyr Asn Asp Ser Lys Ser Thr Asn Ile Leu Ala Thr Gln Lys
 325 330 335

Ala Leu Ser Gly Phe Asp Asn Thr Lys Val Ile Leu Ile Ala Gly Gly

	340	345	350
Leu Asp Arg Gly Asn Glu Phe Asp Glu Leu Ile Pro Asp Ile Thr Gly			
355	360	365	
Leu Lys His Met Val Val Leu Gly Glu Ser Ala Ser Arg Val Lys Arg			
370	375	380	
Ala Ala Gln Lys Ala Gly Val Thr Tyr Ser Asp Ala Leu Asp Val Arg			
385	390	395	400
Asp Ala Val His Lys Ala Tyr Glu Val Ala Gln Gln Gly Asp Val Ile			
405	410	415	
Leu Leu Ser Pro Ala Asn Ala Ser Trp Asp Met Tyr Lys Asn Phe Glu			
420	425	430	
Val Arg Gly Asp Glu Phe Ile Asp Thr Phe Glu Ser Leu Arg Gly Glu			
435	440	445	

<210> 34

<211> 334

<212> PRT

<213> Streptococcus agalactiae

<400> 34

Met Gly Arg Val Met Lys Thr Ile Thr Thr Phe Glu Asn Lys Lys Val			
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Leu Val Leu Gly Leu Ala Arg Ser Gly Glu Ala Ala Ala Arg Leu Leu			
20	25	30	
Ala Lys Leu Gly Ala Ile Val Thr Val Asn Asp Gly Lys Pro Phe Asp			
35	40	45	
Glu Asn Pro Thr Ala Gln Ser Leu Leu Glu Gly Ile Lys Val Val			
50	55	60	
Cys Gly Ser His Pro Leu Glu Leu Leu Asp Glu Asp Phe Cys Tyr Met			
65	70	75	80
Ile Lys Asn Pro Gly Ile Pro Tyr Asn Asn Pro Met Val Lys Lys Ala			
85	90	95	
Leu Glu Lys Gln Ile Pro Val Leu Thr Glu Val Glu Leu Ala Tyr Leu			
100	105	110	
Val Ser Glu Ser Gln Leu Ile Gly Ile Thr Gly Ser Asn Gly Lys Thr			
115	120	125	
Thr Thr Thr Met Ile Ala Glu Val Leu Asn Ala Gly Gly Gln Arg			
130	135	140	
Gly Leu Leu Ala Gly Asn Ile Gly Phe Pro Ala Ser Glu Val Val Gln			
145	150	155	160
Ala Ala Asn Asp Lys Asp Thr Leu Val Met Glu Leu Ser Ser Phe Gln			
165	170	175	
Leu Met Gly Val Lys Glu Phe Arg Pro His Ile Ala Val Ile Thr Asn			
180	185	190	
Leu Met Pro Thr His Leu Asp Tyr His Gly Ser Phe Glu Asp Tyr Val			
195	200	205	
Ala Ala Lys Trp Asn Ile Gln Asn Gln Met Ser Ser Asp Phe Leu			
210	215	220	
Val Leu Asn Phe Asn Gln Gly Ile Ser Lys Glu Leu Ala Lys Thr Thr			
225	230	235	240
Lys Ala Thr Ile Val Pro Phe Ser Thr Thr Glu Lys Val Asp Gly Ala			
245	250	255	
Tyr Val Gln Asp Lys Gln Leu Phe Tyr Lys Gly Glu Asn Ile Met Ser			
260	265	270	
Val Asp Asp Ile Gly Val Pro Gly Ser His Asn Val Glu Asn Ala Leu			

275	280	285
Ala Thr Ile Ala Val Ala Lys Leu Ala Gly Ile Ser Asn Gln Val Ile		
290	295	300
Arg Glu Thr Leu Ser Asn Phe Gly Gly Val Lys His Arg Leu Gln Ser		
305	310	315
Leu Gly Lys Val His Gly Ile Ser Phe Tyr Asn Asp Ser Lys		
325	330	

<210> 35
<211> 327

<212> PRT

<213> Streptococcus agalactiae

<400> 35			
Ile Thr Thr Phe Glu Asn Lys Lys Val Leu Val Leu Gly Leu Ala Arg			
1	5	10	15
Ser Gly Glu Ala Ala Ala Arg Leu Ala Lys Leu Gly Ala Ile Val			
20	25	30	
Thr Val Asn Asp Gly Lys Pro Phe Asp Glu Asn Pro Thr Ala Gln Ser			
35	40	45	
Leu Leu Glu Glu Gly Ile Lys Val Val Cys Gly Ser His Pro Leu Glu			
50	55	60	
Leu Leu Asp Glu Asp Phe Cys Tyr Met Ile Lys Asn Pro Gly Ile Pro			
65	70	75	80
Tyr Asn Asn Pro Met Val Lys Lys Ala Leu Glu Lys Gln Ile Pro Val			
85	90	95	
Leu Thr Glu Val Glu Leu Ala Tyr Leu Val Ser Glu Ser Gln Leu Ile			
100	105	110	
Gly Ile Thr Gly Ser Asn Gly Lys Thr Thr Thr Thr Met Ile Ala			
115	120	125	
Glu Val Leu Asn Ala Gly Gly Gln Arg Gly Leu Leu Ala Gly Asn Ile			
130	135	140	
Gly Phe Pro Ala Ser Glu Val Val Gln Ala Ala Asn Asp Lys Asp Thr			
145	150	155	160
Leu Val Met Glu Leu Ser Ser Phe Gln Leu Met Gly Val Lys Glu Phe			
165	170	175	
Arg Pro His Ile Ala Val Ile Thr Asn Leu Met Pro Thr His Leu Asp			
180	185	190	
Tyr His Gly Ser Phe Glu Asp Tyr Val Ala Ala Lys Trp Asn Ile Gln			
195	200	205	
Asn Gln Met Ser Ser Ser Asp Phe Leu Val Leu Asn Phe Asn Gln Gly			
210	215	220	
Ile Ser Lys Glu Leu Ala Lys Thr Thr Lys Ala Thr Ile Val Pro Phe			
225	230	235	240
Ser Thr Thr Glu Lys Val Asp Gly Ala Tyr Val Gln Asp Lys Gln Leu			
245	250	255	
Phe Tyr Lys Gly Glu Asn Ile Met Ser Val Asp Asp Ile Gly Val Pro			
260	265	270	
Gly Ser His Asn Val Glu Asn Ala Leu Ala Thr Ile Ala Val Ala Lys			
275	280	285	
Leu Ala Gly Ile Ser Asn Gln Val Ile Arg Glu Thr Leu Ser Asn Phe			
290	295	300	
Gly Gly Val Lys His Arg Leu Gln Ser Leu Gly Lys Val His Gly Ile			
305	310	315	320
Ser Phe Tyr Asn Asp Ser Lys			

<210> 36
<211> 1376
<212> DNA
<213> Streptococcus agalactiae

<400> 36

atgaataaaa	aggtactatt	gacatcgaca	atggcagctt	cgcttatttc	agtcgcgaatg	60
gttcaagcac	aagaacaga	tacgacgttg	acagcacgt	ctgtttcaga	ggtaaggct	120
gattttgtaa	agcaagacaa	taaatcatca	tatactgtg	aatatggtg	tacactaagc	180
gttatttcag	aagcaatgtc	aattgtatg	aatgtcttag	caaaaataaa	taacattgca	240
gatataatcc	ttatatttc	tgagacaaca	ctgcagctaa	cttacgatca	gaagagtcat	300
actgcccatt	caatgaaaaat	agaaaacacca	gcaacaaatg	ctgctggta	aacaacagct	360
actgtggatt	tgaaaaaccaa	tcaagtttct	gttgcagacc	aaaagttt	tctcaatata	420
attcggaaag	gtatgacacc	aaagcagca	aaacagattt	tttcggcaat	gaagacatata	480
tcttcgtgc	cagtttggaa	atcaaaaagaa	gtttagac	aagagcagc	tgttagtcaa	540
gcagcageta	atgaacaggat	atcaaggat	cctgtgaagt	cgatacttc	agaagtccaa	600
cgacgttcaa	aggaaggat	aaaccaatcg	acgtcgatca	gtcgtcaac	aacagtatca	660
ccagcttcgt	ttgcccgtga	aacaccaagct	ccagtagct	aagtagcacc	ggtaagaact	720
gtagcagccc	ctagatgtgc	aagtgttaaa	gtatgcactc	ctaaagtaga	aactgtgtca	780
tcacccagac	atgtatcagc	tccagcgtt	cctgtgacta	cgacttcacc	agctacagac	840
agtaaggta	aagcgactga	agttaaagac	gttccgttag	cacaaaagc	tccaaacagca	900
acacccgttag	cacaacccgc	ttcaacaaca	aatgcagtagt	ctgcacatcc	tgaaaatgca	960
gggtcccaac	ctcatgtgc	agttaaaaaa	aaaaaaatgg	cgtaacaacta	tggagttaat	1020
gaattcgtat	cataccgtgc	gggagatcca	ggtgatcatg	gtaaaggttt	agcagttgac	1080
tttttgttag	gtactaatca	agcacttgg	aataaaagtt	cacagtactc	tacacaaaat	1140
atggcagcaa	ataacatttc	atatgttac	tggcaacaaa	agttttactc	aaataacaaac	1200
agttttatgg	gacctgtctaa	tacttggaa	gcaatgcac	atcggtgg	cgttactgccc	1260
aaccatctgg	accacgttca	cgtatcattt	acaacaaataat	ataaaaaagg	aagcttatttgc	1320
gctttttttt	tatatgcctt	gaatagactt	tcaaggttct	tatataattt	ttatta	1376
Met Asn Lys Val Leu Leu Thr Ser Thr	Met Ala Ala Ser Leu Leu					
1	5	10	15			
Ser Val Ala Ser Val Gln Ala Gln	Glu Thr Asp Thr Thr Trp	Trh Ala				
20	25	30				
Arg Thr Val Ser Glu Val Lys Ala Asp	Leu Val Lys Gln Asp Asn Lys					
35	40	45				
Ser Ser Tyr Thr Val Lys Tyr Gly Asp	Thr Leu Ser Val Ile Ser Glu					
50	55	60				
Ala Met Ser Ile Asp Met Asn Val Leu Ala	Lys Ile Asn Asn Ile Ala					
65	70	75	80			
Asp Ile Asn Leu Ile Tyr Pro Glu Thr Thr	Leu Thr Val Thr Tyr Asp					
85	90	95				
Gln Lys Ser His Thr Ala Thr Ser Met	Lys Ile Glu Thr Pro Ala Thr					
100	105	110				
Asn Ala Ala Gly Gln Thr Thr Ala Thr Val Asp	Leu Lys Thr Asn Gln					
115	120	125				

Val	Ser	Val	Ala	Asp	Gln	Lys	Val	Ser	Leu	Asn	Thr	Ile	Ser	Glu	Gly
130					135						140				
Met	Thr	Pro	Glu	Ala	Ala	Thr	Thr	Ile	Val	Ser	Pro	Met	Lys	Thr	Tyr
145					150					155					160
Ser	Ser	Ala	Pro	Ala	Leu	Lys	Ser	Lys	Glu	Val	Leu	Ala	Gln	Glu	Gln
					165				170					175	
Ala	Val	Ser	Gln	Ala	Ala	Ala	Asn	Glu	Gln	Val	Ser	Pro	Ala	Pro	Val
					180				185					190	
Lys	Ser	Ile	Thr	Ser	Glu	Val	Pro	Ala	Ala	Lys	Glu	Glu	Val	Lys	Pro
					195				200			205			
Thr	Gln	Thr	Ser	Val	Ser	Gln	Ser	Thr	Thr	Val	Ser	Pro	Ala	Ser	Val
					210				215			220			
Ala	Ala	Glu	Thr	Pro	Ala	Pro	Val	Ala	Lys	Val	Ala	Pro	Val	Arg	Thr
225					230					235					240
Val	Ala	Ala	Pro	Arg	Val	Ala	Ser	Val	Lys	Val	Val	Thr	Pro	Lys	Val
					245				250			255			
Glu	Thr	Gly	Ala	Ser	Pro	Glu	His	Val	Ser	Ala	Pro	Ala	Val	Pro	Val
					260				265			270			
Thr	Thr	Thr	Ser	Pro	Ala	Thr	Asp	Ser	Lys	Leu	Gln	Ala	Thr	Glu	Val
					275				280			285			
Lys	Ser	Val	Pro	Val	Ala	Gln	Lys	Ala	Pro	Thr	Ala	Thr	Pro	Val	Ala
					290				295			300			
Gln	Pro	Ala	Ser	Thr	Thr	Asn	Ala	Val	Ala	Ala	His	Pro	Glu	Asn	Ala
					305				310			315			320
Gly	Leu	Gln	Pro	His	Val	Ala	Ala	Tyr	Lys	Glu	Lys	Val	Ala	Ser	Thr
					325				330			335			
Tyr	Gly	Val	Asn	Glu	Phe	Ser	Thr	Tyr	Arg	Ala	Gly	Asp	Pro	Gly	Asp
					340				345			350			
His	Gly	Lys	Gly	Leu	Ala	Val	Asp	Phe	Ile	Val	Gly	Thr	Asn	Gln	Ala
					355				360			365			
Leu	Gly	Asn	Lys	Val	Ala	Gln	Tyr	Ser	Thr	Gln	Asn	Met	Ala	Ala	Asn
					370				375			380			
Asn	Ile	Ser	Tyr	Val	Ile	Trp	Gln	Gln	Lys	Phe	Tyr	Ser	Asn	Thr	Asn
					385				390			395			400
Ser	Ile	Tyr	Gly	Pro	Ala	Asn	Thr	Trp	Asn	Ala	Met	Pro	Asp	Arg	Gly
					405				410			415			
Gly	Val	Thr	Ala	Asn	His	Tyr	Asp	His	Val	His	Val	Ser	Phe	Asn	Lys
					420				425			430			

<210> 38

<211> 392

<212> PRT

<213> Streptococcus agalactiae

<400> 38

Asp	Leu	Val	Lys	Gln	Asp	Asn	Lys	Ser	Ser	Tyr	Thr	Val	Lys	Tyr	Gly
1					5				10			15			
Asp	Thr	Leu	Ser	Val	Ile	Ser	Glu	Ala	Met	Ser	Ile	Asp	Met	Asn	Val
					20				25			30			
Leu	Ala	Lys	Ile	Asn	Asn	Ile	Ala	Asp	Ile	Asn	Leu	Ile	Tyr	Pro	Glu
					35				40			45			
Thr	Thr	Leu	Thr	Val	Thr	Tyr	Asp	Gln	Lys	Ser	His	Thr	Ala	Thr	Ser
					50				55			60			
Met	Lys	Ile	Glu	Thr	Pro	Ala	Thr	Asn	Ala	Ala	Gly	Gln	Thr	Thr	Ala
					65				70			75			80

Thr	Val	Asp	Leu	Lys	Thr	Asn	Gln	Val	Ser	Val	Ala	Asp	Gln	Lys	Val
		85						90						95	
Ser	Leu	Asn	Thr	Ile	Ser	Glu	Gly	Met	Thr	Pro	Glu	Ala	Ala	Thr	Thr
		100						105						110	
Ile	Val	Ser	Pro	Met	Lys	Thr	Tyr	Ser	Ser	Ala	Pro	Leu	Lys	Ser	
		115					120						125		
Lys	Glu	Val	Leu	Ala	Gln	Glu	Gln	Ala	Val	Ser	Gln	Ala	Ala	Ala	Asn
		130				135						140			
Glu	Gln	Val	Ser	Pro	Ala	Pro	Val	Lys	Ser	Ile	Thr	Ser	Glu	Val	Pro
		145				150				155			160		
Ala	Ala	Lys	Glu	Val	Val	Lys	Pro	Thr	Gln	Thr	Ser	Val	Ser	Gln	Ser
						165			170				175		
Thr	Thr	Val	Ser	Pro	Ala	Ser	Val	Ala	Ala	Glu	Thr	Pro	Ala	Pro	Val
							180			185			190		
Ala	Lys	Val	Ala	Pro	Val	Arg	Thr	Val	Ala	Ala	Pro	Arg	Val	Ala	Ser
		195					200					205			
Val	Lys	Val	Val	Thr	Pro	Lys	Val	Glu	Thr	Gly	Ala	Ser	Pro	Glu	His
		210				215					220				
Val	Ser	Ala	Pro	Ala	Val	Pro	Val	Thr	Thr	Thr	Ser	Pro	Ala	Thr	Asp
		225				230				235			240		
Ser	Lys	Leu	Gln	Ala	Thr	Glu	Val	Lys	Ser	Val	Pro	Val	Ala	Gln	Lys
						245			250			255			
Ala	Pro	Thr	Ala	Thr	Pro	Val	Ala	Gln	Pro	Ala	Ser	Thr	Thr	Asn	Ala
						260			265			270			
Val	Ala	Ala	His	Pro	Glu	Asn	Ala	Gly	Leu	Gln	Pro	His	Val	Ala	Ala
		275					280					285			
Tyr	Lys	Glu	Lys	Val	Ala	Ser	Thr	Tyr	Gly	Val	Asn	Glu	Phe	Ser	Thr
		290					295					300			
Tyr	Arg	Ala	Gly	Asp	Pro	Gly	Asp	His	Gly	Lys	Gly	Leu	Ala	Val	Asp
		305				310				315			320		
Phe	Ile	Val	Gly	Thr	Asn	Gln	Ala	Leu	Gly	Asn	Lys	Val	Ala	Gln	Tyr
						325			330			335			
Ser	Thr	Gln	Asn	Met	Ala	Ala	Asn	Asn	Ile	Ser	Tyr	Val	Ile	Trp	Gln
							340			345			350		
Gln	Lys	Phe	Tyr	Ser	Asn	Thr	Asn	Ser	Ile	Tyr	Gly	Pro	Ala	Asn	Thr
		355					360					365			
Trp	Asn	Ala	Met	Pro	Asp	Arg	Gly	Gly	Val	Thr	Ala	Asn	His	Tyr	Asp
		370				375					380				
His	Val	His	Val	Ser	Phe	Asn	Lys								
		385				390									

<210> 39

<211> 1500

<212> DNA

<213> Streptococcus agalactiae

<400>	39														
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aagaagtgg	tgagtgctgg	atactgggggt	gaaagccttg	acgttagaagc	ttcagcagaa								120		
aaaatgtctc	aattgattaa	agaagggtct	aacgtttcc	gttcaactt	ctcacatgg								180		
gatcatgtcg	tgcaaggagc	tcgtatggct	actgttgcgt	aaggcagaaga	gatgtcggaa								240		
caaaaatgtt	gtttccctt	tgtatctaa	ggacgttgcgt	ttcgatcaga	actttttgaa								300		
gatgttgcgt	atttccattc	ataatacaaca	ggtacaaaat	tacgttgtgc	tactaagcaa								360		
ggttatcaat	caactccaga	agtgtttgc	ttgtatgtt	ctgggtgact	tgacatcttt								420		
gtatgttgcgt	aaatgttgcgt	gcaaatccct	gttgcgtatgt	gttaactagg	tcttactgtt								480		

tttgaaacaaag ataaaagcac	tcgtgaattt	gaagttagtt	ttgagaatga	tggccttatt	540
ggtaaaaaaaa aagggtgtaaa	catcccttat	actaaaaattc	cttcccacg	acttgcagaa	600
cgcataatg	ctgatattccg	ttttggactt	gagaacggac	ttaactttat	660
tttgtaccta	ctgctaaaga	tgttaatgaa	gttcgtgta	tttgtgaaga	720
ggacacgtta	agtgtgttgc	taaaattgaa	aatcaacaag	gtatcgataa	780
attatcgaa	cagcagatgg	tattatgatt	gtcgtgttgc	atatggat	840
tttgaatgg	ttccagttt	ccaaaaaatg	atcattacta	aagttatgc	900
gcagtttata	cagaacaaa	tatgttgaa	acaatgactg	ataaaaccacg	960
tcagaagttat	ctgatgttct	caatgttgc	attgtgtta	ctgatgtc	1020
ggtgagtca	ctaatgtta	ataccaggta	gagtcagttc	gtacaatggc	1080
aaaaatgtctc	aaacattact	caatgtatg	ggtcgttgc	actcatctgc	1140
aataacaaaaa	ctgatgttat	tgcacatgcg	gtttaagatg	caacacactc	1200
aaacctgttgc	taacaattac	tgaaacagg	aatacagtc	aatggatatac	1260
ccagatgcag	acattttgc	tgtttacattt	gatggaaaag	tacaacgttc	1320
aactgggggt	ttatccctgt	ccttcgcac	aaaccagcat	ctacagatga	1380
gttgcagac	gttgcagact	tgaaacgg	ttttgttgaat	caggcgataa	1440
gttgcaggtt	ttcctgttgc	tacagggttgc	actaacacaa	tgcgtttcg	1500

<210> 40

<211> 500

<212> PRT

<213> Streptococcus agalactiae

<220>

<221> VARIANT

<222> (1)...(500)

<223> Xaa = Any Amino Acid

<400> 40

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20	25	30			
Leu Asp Val Glu Ala Ser Ala Glu Ile Lys Ile Ala Gln Leu Ile Lys Glu					
35	40	45			
Gly Ala Asn Val Phe Arg Phe Asn Phe Ser His Gly Asp His Ala Glu					
50	55	60			
Gln Gly Ala Arg Met Ala Thr Val Arg Lys Ala Glu Glu Ile Ala Gly					
65	70	75	80		
Gln Lys Val Gly Phe Leu Leu Asp Thr Lys Gly Pro Glu Ile Arg Thr					
85	90	95			
Glu Leu Phe Glu Asp Gly Ala Asp Phe His Ser Tyr Thr Thr Gly Thr					
100	105	110			
Lys Leu Arg Val Ala Thr Lys Gln Gly Ile Lys Ser Thr Pro Glu Val					
115	120	125			
Ile Ala Leu Asn Val Ala Gly Gly Leu Asp Ile Phe Asp Asp Val Glu					
130	135	140			
Val Gly Lys Gln Ile Leu Val Asp Asp Gly Lys Leu Gly Leu Thr Val					
145	150	155	160		
Phe Ala Lys Asp Lys Asp Thr Arg Glu Phe Glu Val Val Val Glu Asn					
165	170	175			
Asp Gly Leu Ile Gly Lys Gln Lys Gly Val Asn Ile Pro Tyr Thr Lys					
180	185	190			
Ile Pro Phe Pro Ala Leu Ala Glu Arg Asp Asn Ala Asp Ile Arg Phe					
195	200	205			

Gly Leu Glu Gln Gly Leu Asn Phe Ile Ala Ile Ser Phe Val Arg Thr
 210 215 220
 Ala Lys Asp Val Asn Glu Val Arg Ala Ile Cys Glu Glu Thr Gly Xaa
 225 230 235 240
 Gly His Val Lys Leu Phe Ala Lys Ile Glu Asn Gln Gln Gly Ile Asp
 245 250 255
 Asn Ile Asp Glu Ile Ile Glu Ala Ala Asp Gly Ile Met Ile Ala Arg
 260 265 270
 Gly Asp Met Gly Ile Glu Val Pro Phe Glu Met Val Pro Val Tyr Gln
 275 280 285
 Lys Met Ile Ile Thr Lys Val Asn Ala Ala Gly Lys Ala Val Ile Thr
 290 295 300
 Ala Thr Asn Met Leu Glu Thr Met Thr Asp Lys Pro Arg Ala Thr Arg
 305 310 315 320
 Ser Glu Val Ser Asp Val Phe Asn Ala Val Ile Asp Gly Thr Asp Ala
 325 330 335
 Thr Met Leu Ser Gly Glu Ser Ala Asn Gly Lys Tyr Pro Val Glu Ser
 340 345 350
 Val Arg Thr Met Ala Thr Ile Asp Lys Asn Ala Gln Thr Leu Leu Asn
 355 360 365
 Glu Tyr Gly Arg Leu Asp Ser Ser Ala Phe Pro Arg Asn Asn Lys Thr
 370 375 380
 Asp Val Ile Ala Ser Ala Val Lys Asp Ala Thr His Ser Met Asp Ile
 385 390 395 400
 Lys Leu Val Val Thr Ile Thr Glu Thr Gly Asn Thr Ala Arg Ala Ile
 405 410 415
 Ser Lys Phe Arg Pro Asp Ala Asp Ile Leu Ala Val Thr Phe Asp Glu
 420 425 430
 Lys Val Gln Arg Ser Leu Met Ile Asn Trp Gly Val Ile Pro Val Leu
 435 440 445
 Ala Asp Lys Pro Ala Ser Thr Asp Asp Met Phe Glu Val Ala Glu Arg
 450 455 460
 Val Ala Leu Glu Ala Gly Phe Val Glu Ser Gly Asp Asn Ile Val Ile
 465 470 475 480
 Val Ala Gly Val Pro Val Gly Thr Gly Gly Thr Asn Thr Met Arg Val
 485 490 495
 Arg Thr Val Lys
 500

<210> 41

<211> 720

<212> DNA

<213> Streptococcus agalactiae

<400> 41

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atcattaatt caaaaacatg acttgaacgt gaaactttcc aacagtcttt tcagcaacta	120
atgaccgaaat tatctgatgt atatggtaa gagctgattt ctccatttcatttacatgc	180
ggtgtatgaat ttcaagcttt attgaaacca tcaaaaaagg tatttcaaat tattgaccat	240
attcaactag ctctaaaacc tgtaatgtt aggttcggcc tcggtagcagg aaacattata	300
acatccatca attcaaaatgaa aagtatcggt gctgatggtc ctgcctactg gcatgcctgc	360
ttagcttata atcatataca tgataaaaaat gattatggaa cagtcaagt agctatttgc	420
cttggatgtt aagacaaaaa ctttgaatca acactaaaaat gtctcatttc agctggat	480
tttatcaagt caaaatggac tacaaaccat ttcaatgc ttgagcactt aatacttcaa	540
gataattatc aagaacaatt tcaacatcaa aagtttagccc aactggaaaa tattgaacct	600

agtgcgctga ctaaacgcct taaagcaagc ggtctgaaga tttacttaag aacgagaaca
caggcagccg atcttattgt taaaagttgc actcaaacta aagggggaag ctatgattc

660

720

<210> 42

<211> 240

<212> PRT

<213> Streptococcus agalactiae

<400> 42

Met Ser Ala Ile Ile Asp Lys Val Val Ile Phe Met Tyr Leu Ala
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Leu Ile Gly Asp Ile Ile Asn Ser Lys Gln Ile Leu Glu Arg Glu Thr
20 25 30
Phe Gln Gln Ser Phe Gln Gln Leu Met Thr Glu Leu Ser Asp Val Tyr
35 40 45
Gly Glu Glu Leu Ile Ser Pro Phe Thr Ile Thr Ala Gly Asp Glu Phe
50 55 60
Gln Ala Leu Leu Lys Pro Ser Lys Lys Val Phe Gln Ile Ile Asp His
65 70 75 80
Ile Gln Leu Ala Leu Lys Pro Val Asn Val Arg Phe Gly Leu Gly Thr
85 90 95
Gly Asn Ile Ile Thr Ser Ile Asn Ser Asn Glu Ser Ile Gly Ala Asp
100 105 110
Gly Pro Ala Tyr Trp His Ala Arg Ser Ala Ile Asn His Ile His Asp
115 120 125
Lys Asn Asp Tyr Gly Thr Val Gln Val Ala Ile Cys Leu Asp Asp Glu
130 135 140
Asp Gln Asn Leu Glu Leu Thr Leu Asn Ser Leu Ile Ser Ala Gly Asp
145 150 155 160
Phe Ile Lys Ser Lys Trp Thr Thr Asn His Phe Gln Met Leu Glu His
165 170 175
Leu Ile Leu Gln Asp Asn Tyr Gln Glu Gln Phe Gln His Gln Lys Leu
180 185 190
Ala Gln Leu Glu Asn Ile Glu Pro Ser Ala Leu Thr Lys Arg Leu Lys
195 200 205
Ala Ser Gly Leu Lys Ile Tyr Leu Arg Thr Arg Thr Gln Ala Ala Asp
210 215 220
Leu Leu Val Lys Ser Cys Thr Gln Thr Lys Gly Gly Ser Tyr Asp Phe
225 230 235 240

<210> 43

<211> 228

<212> PRT

<213> Streptococcus agalactiae

<400> 43

Met Tyr Leu Ala Leu Ile Gly Asp Ile Ile Asn Ser Lys Gln Ile Leu
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Glu Arg Glu Thr Phe Gln Gln Ser Phe Gln Gln Leu Met Thr Glu Leu
20 25 30
Ser Asp Val Tyr Gly Glu Glu Leu Ile Ser Pro Phe Thr Ile Thr Ala
35 40 45
Gly Asp Glu Phe Gln Ala Leu Leu Lys Pro Ser Lys Lys Val Phe Gln
50 55 60
Ile Ile Asp His Ile Gln Leu Ala Leu Lys Pro Val Asn Val Arg Phe

65	70	75	80
Gly Leu Gly Thr Gly Asn Ile Ile	Thr Ser Ile Asn Ser Asn Glu Ser		
85	90	95	
Ile Gly Ala Asp Gly Pro Ala Tyr Trp His Ala Arg Ser Ala Ile Asn			
100	105	110	
His Ile His Asp Lys Asn Asp Tyr Gly Thr Val Gln Val Ala Ile Cys			
115	120	125	
Leu Asp Asp Glu Asp Gln Asn Leu Glu Leu Thr Leu Asn Ser Leu Ile			
130	135	140	
Ser Ala Gly Asp Phe Ile Lys Ser Lys Trp Thr Thr Asn His Phe Gln			
145	150	155	160
Met Leu Glu His Leu Ile Leu Gln Asp Asn Tyr Gln Glu Gln Phe Gln			
165	170	175	
His Gln Lys Leu Ala Gln Leu Glu Asn Ile Glu Pro Ser Ala Leu Thr			
180	185	190	
Lys Arg Leu Lys Ala Ser Gly Leu Lys Ile Tyr Leu Arg Thr Arg Thr			
195	200	205	
Gln Ala Ala Asp Leu Leu Val Lys Ser Cys Thr Gln Thr Lys Gly Gly			
210	215	220	
Ser Tyr Asp Phe			
225			

<210> 44

<211> 2193

<212> DNA

<213> Streptococcus agalactiae

<400> 44

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cataaacgc atcttcgcg cttaaaaga ggaatttcta aacattata taaaatcac	120
gactctatt tagaatcttca tacaggaaagc aataactatgtg accccagggg tcctgagcaa	180
tacaaagatg agacacgttaa tttaaaattt gcttttaccg cttttgaaga ggcttctgt	240
tcttcagggt ttaattttaa acgttatcat aataatgtgt tggttttagg gacctcactt	300
ggggaaagaa gtgcgtgtca aatagtccctt tatcaatttt aagaaggaga ggcgtcaagta	360
gatgttagttt tattagaaaaa agcatctttt taccatattt ctgtatgaatt gatggcttat	420
catgtatattt tgggagcttc gtatgtttt tcaaccggctt gttctgcggaa taataatgtcc	480
gtatataatgg aaacacaattt acttcgaatg ggcgtattgtt atttagctat ttgtgttggc	540
tgtgtatgtt taagtgtat ttcttttagca ggcttcacat cactaggagc tattaataca	600
gaardatggat gtgcggccata ttcttcgttga aaaggatcatc atttgggtga ggccgcgtgtt	660
tttgttggtc ttgtcaaaaga ttcgtgttca gtcataatgtt gaaaattat cgggtgttctt	720
attacttcag atgggttatca tataacagca ctcggccaa cagggtgaagg ggcggccacag	780
atggcaaaacg agctgtatgc tcaaggcgtt attgtactca gtggatgtt ctatattaaac	840
ggtcgggtta cgggttactca agctaattgtt aaaaatggaa aaaaatgttga tggtaaattt	900
ttccccgacaa cgacattgtat cagcgttacc aaggggccaa cgggtcatac tctaggggct	960
gcgggttata ttcgtatgtt taattttttt cggccaaatgg aggaacacagc tgtaaccggca	1020
actaaaaatgg agatgggtt ccaggaaattt ttgttctata tcaaaaagaga 1080	
gaatacccaa taagaatgtt tttttttt tttttttttt ttgttgaaa taatagtgtt	1140
gtcttattgtt catcttttgcgatccatc gaaacattac ctgttagaga aaatctttaaa	1200
atggctatctt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt	1260
gaaaaatgtt ctgtatgtt caacggactttt gaaggattttt gctttaaagg ggcttagacca	1320
cccccaaaatgtt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt	1380
gttacaaacacg ctcaccaacggc acatattttttt gaaaatggat atttttttttt aatgggttgc	1440
aaatgtttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt	1500
aagcaaatccaa caacacaagg atatgcacat gttttttttt tttttttttt tttttttttt	1560
atggatgcacg cagctgttatc gttttttttt tttttttttt tttttttttt tttttttttt	1620

atttcgacaa	atagtggagc	gctttagatgtt	atacaataatgc	ccaaggaaat	gatgcgtaac	1680
gataatctcg	actatgtat	tcttgcgttct	gctaataatcg	ggcacagacat	gagttttatg	1740
tggggcaac	attaacaacta	tgtatgtcaa	atgtttgtcg	gttctgat	ttgttcagca	1800
caagtccct	ctcgtaacgc	attggataat	tctctataa	tattaggtat	taaacaat	1860
aaatataatgc	ataaaacatt	cacagatgt	atgactattt	ttgatgtcg	gcttcggaaat	1920
tttattatcg	acttaggact	aaccataaaa	gatatacaag	gtttcggttg	gaatgagcgg	1980
aagaaggcag	ttatgttcaga	ttatgatttc	ttagcgaact	tgtctgat	ttataatata	2040
ccaaaccttg	cttctgtca	gtttgattt	tcatctaatg	gtgtctggta	agaactggac	2100
tatactgtta	atgaaagttt	agaaaaggc	tattatgtt	tcctatctt	ttcgatctt	2160
gttgttatct	tatttgatct	tattgaaaaa	agg			2193

<210> 45

<211> 731

<212> PRT

<213> Streptococcus agalactiae

<400> 45

Met	Ser	Val	Tyr	Val	Ser	Gly	Ile	Gly	Ile	Ile	Ser	Ser	Leu	Gly	Lys
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Asn	Tyr	Ser	Glu	His	Lys	Gln	His	Leu	Phe	Asp	Leu	Lys	Glu	Gly	Ile
								20		25					30
Ser	Lys	His	Leu	Tyr	Lys	Asn	His	Asp	Ser	Ile	Leu	Glu	Ser	Tyr	Thr
								35		40					45
Gly	Ser	Ile	Thr	Ser	Asp	Pro	Glu	Val	Pro	Glu	Gln	Tyr	Lys	Asp	Glu
							50		55						60
Thr	Arg	Asn	Phe	Lys	Phe	Ala	Phe	Thr	Ala	Phe	Glu	Glu	Ala	Leu	Ala
65							65		70		75				80
Ser	Ser	Gly	Val	Asn	Leu	Lys	Ala	Tyr	His	Asn	Ile	Ala	Val	Cys	Leu
							85			90					95
Gly	Thr	Ser	Leu	Gly	Gly	Lys	Ser	Ala	Gly	Gln	Asn	Ala	Leu	Tyr	Gln
							100			105					110
Phe	Glu	Glu	Gly	Glu	Arg	Gln	Val	Asp	Ala	Ser	Leu	Leu	Glu	Lys	Ala
							115		120						125
Ser	Val	Tyr	His	Ile	Ala	Asp	Glu	Leu	Met	Ala	Tyr	His	Asp	Ile	Val
							130		135						140
Gly	Ala	Ser	Tyr	Val	Ile	Ser	Thr	Ala	Cys	Ser	Ala	Ser	Asn	Asn	Ala
145							145		150		155				160
Val	Ile	Leu	Gly	Thr	Gln	Leu	Leu	Gln	Asp	Gly	Asp	Cys	Asp	Leu	Ala
							165			170					175
Ile	Cys	Gly	Gly	Asp	Glu	Leu	Ser	Ile	Ser	Leu	Ala	Gly	Phe		
							180			185					190
Thr	Ser	Leu	Gly	Ala	Ile	Asn	Thr	Glu	Met	Ala	Cys	Gln	Pro	Tyr	Ser
							195		200						205
Ser	Gly	Lys	Gly	Ile	Asn	Leu	Gly	Glu	Gly	Ala	Gly	Phe	Val	Val	Leu
							210		215		220				
Val	Lys	Asp	Gln	Ser	Leu	Ala	Lys	Tyr	Gly	Lys	Ile	Ile	Gly	Gly	Leu
225							225		230		235				240
Ile	Thr	Ser	Asp	Gly	Tyr	His	Ile	Thr	Ala	Pro	Lys	Pro	Thr	Gly	Glu
							245			250					255
Gly	Ala	Ala	Gln	Ile	Ala	Lys	Gln	Leu	Val	Thr	Gln	Ala	Gly	Ile	Asp
							260			265					270
Tyr	Ser	Glu	Ile	Asp	Tyr	Ile	Asn	Gly	His	Gly	Thr	Gly	Thr	Gln	Ala
							275		280		285				
Asn	Asp	Lys	Met	Glu	Lys	Asn	Met	Tyr	Gly	Lys	Phe	Phe	Pro	Thr	Thr
							290		295		300				

Thr Leu Ile Ser Ser Thr Lys Gly Gln Thr Gly His Thr Leu Gly Ala
 305 310 315 320
 Ala Gly Ile Ile Glu Leu Ile Asn Cys Leu Ala Ala Ile Glu Glu Gln
 325 330 335
 Thr Val Pro Ala Thr Lys Asn Glu Ile Gly Ile Glu Gly Phe Pro Glu
 340 345 350
 Asn Phe Val Tyr His Gln Lys Arg Glu Tyr Pro Ile Arg Asn Ala Leu
 355 360 365
 Asn Phe Ser Phe Ala Phe Gly Gly Asn Asn Ser Gly Val Leu Leu Ser
 370 375 380
 Ser Leu Asp Ser Pro Leu Glu Thr Leu Pro Ala Arg Glu Asn Leu Lys
 385 390 395 400
 Met Ala Ile Leu Ser Ser Val Ala Ser Ile Ser Lys Asn Glu Ser Leu
 405 410 415
 Ser Ile Thr Tyr Glu Lys Val Ala Ser Asn Phe Asn Asp Phe Glu Ala
 420 425 430
 Leu Arg Phe Lys Gly Ala Arg Pro Pro Lys Thr Val Asn Pro Ala Gln
 435 440 445
 Phe Arg Lys Met Asp Asp Phe Ser Lys Met Val Ala Val Thr Thr Ala
 450 455 460
 Gln Ala Leu Ile Glu Ser Asn Ile Asn Leu Lys Lys Gln Asp Thr Ser
 465 470 475 480
 Lys Val Gly Ile Val Phe Thr Thr Leu Ser Gly Pro Val Glu Val Val
 485 490 495
 Glu Gly Ile Glu Lys Gln Ile Thr Thr Glu Gly Tyr Ala His Val Ser
 500 505 510
 Ala Ser Arg Phe Pro Phe Thr Val Met Asn Ala Ala Gly Met Leu
 515 520 525
 Ser Ile Ile Phe Lys Ile Thr Gly Pro Leu Ser Val Ile Ser Thr Asn
 530 535 540
 Ser Gly Ala Leu Asp Gly Ile Gln Tyr Ala Lys Glu Met Met Arg Asn
 545 550 555 560
 Asp Asn Leu Asp Tyr Val Ile Leu Val Ser Ala Asn Gln Trp Thr Asp
 565 570 575
 Met Ser Phe Met Trp Trp Gln Gln Leu Asn Tyr Asp Ser Gln Met Phe
 580 585 590
 Val Gly Ser Asp Tyr Cys Ser Ala Gln Val Leu Ser Arg Gln Ala Leu
 595 600 605
 Asp Asn Ser Pro Ile Ile Leu Gly Ser Lys Gln Leu Lys Tyr Ser His
 610 615 620
 Lys Thr Phe Thr Asp Val Met Thr Ile Phe Asp Ala Ala Leu Gln Asn
 625 630 635 640
 Leu Leu Ser Asp Leu Gly Leu Thr Ile Lys Asp Ile Lys Gly Phe Val
 645 650 655
 Trp Asn Glu Arg Lys Lys Ala Val Ser Ser Asp Tyr Asp Phe Leu Ala
 660 665 670
 Asn Leu Ser Glu Tyr Tyr Asn Met Pro Asn Leu Ala Ser Gly Gln Phe
 675 680 685
 Gly Phe Ser Ser Asn Gly Ala Gly Glu Glu Leu Asp Tyr Thr Val Asn
 690 695 700
 Glu Ser Ile Glu Lys Gly Tyr Tyr Leu Val Leu Ser Tyr Ser Ile Phe
 705 710 715 720
 Gly Gly Ile Ser Phe Ala Ile Ile Glu Lys Arg

<210> 46
<211> 727
<212> PRT
<213> Streptococcus agalactiae

<400> 46
Val Ser Gly Ile Gly Ile Ile Ser Ser Leu Gly Lys Asn Tyr Ser Glu
1 5 10 15
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20 25 30
Tyr Lys Asn His Asp Ser Ile Leu Glu Ser Tyr Thr Gly Ser Ile Thr
35 40 45
Ser Asp Pro Glu Val Pro Glu Gln Tyr Lys Asp Glu Thr Arg Asn Phe
50 55 60
Lys Phe Ala Phe Thr Ala Phe Glu Ala Leu Ala Ser Ser Gly Val
65 70 75 80
Asn Leu Lys Ala Tyr His Asn Ile Ala Val Cys Leu Gly Thr Ser Leu
85 90 95
Gly Gly Lys Ser Ala Gly Gln Asn Ala Leu Tyr Gln Phe Glu Glu Gly
100 105 110
Glu Arg Gln Val Asp Ala Ser Leu Leu Glu Lys Ala Ser Val Tyr His
115 120 125
Ile Ala Asp Glu Leu Met Ala Tyr His Asp Ile Val Gly Ala Ser Tyr
130 135 140
Val Ile Ser Thr Ala Cys Ser Ala Ser Asn Asn Ala Val Ile Leu Gly
145 150 155 160
Thr Gln Leu Leu Gln Asp Gly Asp Cys Asp Leu Ala Ile Cys Gly Gly
165 170 175
Cys Asp Glu Leu Ser Asp Ile Ser Leu Ala Gly Phe Thr Ser Leu Gly
180 185 190
Ala Ile Asn Thr Glu Met Ala Cys Gln Pro Tyr Ser Ser Gly Lys Gly
195 200 205
Ile Asn Leu Gly Glu Gly Ala Gly Phe Val Val Leu Val Lys Asp Gln
210 215 220
Ser Leu Ala Lys Tyr Gly Lys Ile Ile Gly Gly Leu Ile Thr Ser Asp
225 230 235 240
Gly Tyr His Ile Thr Ala Pro Lys Pro Thr Gly Glu Gly Ala Ala Gln
245 250 255
Ile Ala Lys Gln Leu Val Thr Gln Ala Gly Ile Asp Tyr Ser Glu Ile
260 265 270
Asp Tyr Ile Asn Gly His Gly Thr Gly Thr Gln Ala Asn Asp Lys Met
275 280 285
Glu Lys Asn Met Tyr Gly Lys Phe Phe Pro Thr Thr Thr Leu Ile Ser
290 295 300
Ser Thr Lys Gly Gln Thr Gly His Thr Leu Gly Ala Ala Gly Ile Ile
305 310 315 320
Glu Leu Ile Asn Cys Leu Ala Ala Ile Glu Glu Gln Thr Val Pro Ala
325 330 335
Thr Lys Asn Glu Ile Gly Ile Glu Gly Phe Pro Glu Asn Phe Val Tyr
340 345 350
His Gln Lys Arg Glu Tyr Pro Ile Arg Asn Ala Leu Asn Phe Ser Phe
355 360 365
Ala Phe Gly Gly Asn Asn Ser Gly Val Leu Leu Ser Ser Leu Asp Ser
370 375 380

Pro	Leu	Glu	Thr	Leu	Pro	Ala	Arg	Glu	Asn	Leu	Lys	Met	Ala	Ile	Leu
385											395				400
Ser	Ser	Val	Ala	Ser	Ile	Ser	Lys	Asn	Glu	Ser	Leu	Ser	Ile	Thr	Tyr
											405				415
Glu	Lys	Val	Ala	Ser	Asn	Phe	Asn	Asp	Phe	Glu	Ala	Leu	Arg	Phe	Lys
											420				430
Gly	Ala	Arg	Pro	Pro	Lys	Thr	Val	Asn	Pro	Ala	Gln	Phe	Arg	Lys	Met
											435				445
Asp	Asp	Phe	Ser	Lys	Met	Val	Ala	Val	Thr	Thr	Ala	Gln	Ala	Leu	Ile
											450				460
Glu	Ser	Asn	Ile	Asn	Leu	Lys	Lys	Gln	Asp	Thr	Ser	Lys	Val	Gly	Ile
											465				480
Val	Phe	Thr	Thr	Leu	Ser	Gly	Pro	Val	Glu	Val	Val	Glu	Gly	Ile	Glu
											485				495
Lys	Gln	Ile	Thr	Thr	Glu	Gly	Tyr	Ala	His	Val	Ser	Ala	Ser	Arg	Phe
											500				510
Pro	Phe	Thr	Val	Met	Asn	Ala	Ala	Ala	Gly	Met	Leu	Ser	Ile	Ile	Phe
											515				525
Lys	Ile	Thr	Gly	Pro	Leu	Ser	Val	Ile	Ser	Thr	Asn	Ser	Gly	Ala	Leu
											530				540
Asp	Gly	Ile	Gln	Tyr	Ala	Lys	Glu	Met	Met	Arg	Asn	Asp	Asn	Leu	Asp
											545				560
Tyr	Val	Ile	Leu	Val	Ser	Ala	Asn	Gln	Trp	Thr	Asp	Met	Ser	Phe	Met
											565				575
Trp	Trp	Gln	Gln	Leu	Asn	Tyr	Asp	Ser	Gln	Met	Phe	Val	Gly	Ser	Asp
											580				590
Tyr	Cys	Ser	Ala	Gln	Val	Leu	Ser	Arg	Gln	Ala	Leu	Asp	Asn	Ser	Pro
											595				605
Ile	Ile	Leu	Gly	Ser	Lys	Gln	Leu	Lys	Tyr	Ser	His	Lys	Thr	Phe	Thr
											610				620
Asp	Val	Met	Thr	Ile	Phe	Asp	Ala	Ala	Leu	Gln	Asn	Leu	Leu	Ser	Asp
											625				640
Leu	Gly	Leu	Thr	Ile	Lys	Asp	Ile	Lys	Gly	Phe	Val	Trp	Asn	Glu	Arg
											645				655
Lys	Lys	Ala	Val	Ser	Ser	Asp	Tyr	Asp	Phe	Leu	Ala	Asn	Leu	Ser	Glu
											660				670
Tyr	Tyr	Asn	Met	Pro	Asn	Leu	Ala	Ser	Gly	Gln	Phe	Gly	Phe	Ser	Ser
											675				685
Asn	Gly	Ala	Gly	Glu	Glu	Leu	Asp	Tyr	Thr	Val	Asn	Glu	Ser	Ile	Glu
											690				700
Lys	Gly	Tyr	Tyr	Leu	Val	Leu	Ser	Tyr	Ser	Ile	Phe	Gly	Gly	Ile	Ser
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Phe	Ala	Ile	Ile	Glu	Lys	Arg									720

725

<210> 47

<211> 900

<212> DNA

<213> Streptococcus agalactiae

<400> 47

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agtggaaaa	ccaagcttgt	ggtttaatc	atcttactgc	tacttggcgg	agggggacta	120	
						180	

accagcatt	ttaatgactc	atcctcacct	tctagttacc	aatctcgaa	tgtctcacgt	240
tctgttata	atagccaaac	gagaacaacaa	atcgattcg	ttaataaaagt	ccttggtcga	300
actgaggatt	tctggtcaca	agaattccaa	acccaagggt	ttggaaatta	taaggaacca	360
aaacttgtc	tttacccaa	ttcaatcaa	acagggtgt	gtataggta	atctgctca	420
ggaccatgtt	atgttgcgc	agataaaaaaa	atctatcttgc	atattttt	ttacaatgaa	480
ttatcacata	aatatggtc	tactgtgtat	tttgctatgg	cctacgtcat	cgcacacgaa	540
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ggacttacta	agaaaagaacg	aatgttcta	aatgttccgc	tagaactca	agcagattat	660
tatgcagggg	tatgggtc	ctacatcagg	ggaaaaaaatc	tctttagaaca	aggagactt	720
gaagaggc	tgaatgctc	ccacccgc	ggagacgata	cccttcgaa	agaaacctac	780
ggaaaaattag	tgcctgatag	ctttacccat	ggaacagctg	aacaacgca	acggttggtt	840
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<210> 48

<211> 300

<212> PRT

<213> Streptococcus agalactiae

<400> 48

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Ser	Ser	Ser	Gly	Gly	Ser	Phe	Ser	Ser	Gly	Gly	Ser	Gly	Leu	Pro	Ile
									25				30		
Leu	Gln	Leu	Leu	Leu	Leu	Arg	Gly	Ser	Trp	Lys	Thr	Lys	Leu	Val	Val
										40		45			
Leu	Ile	Ile	Leu	Leu	Leu	Gly	Gly	Gly	Gly	Leu	Thr	Ser	Ile	Phe	
										55		60			
Asn	Asp	Ser	Ser	Ser	Pro	Ser	Ser	Tyr	Gln	Ser	Gln	Asn	Val	Ser	Arg
65									70		75			80	
Ser	Val	Asp	Asn	Ser	Ala	Thr	Arg	Glu	Gln	Ile	Asp	Phe	Val	Asn	Lys
									85		90		95		
Val	Leu	Gly	Ser	Thr	Glu	Asp	Phe	Trp	Ser	Gln	Glu	Phe	Gln	Thr	Gln
									100		105		110		
Gly	Phe	Gly	Asn	Tyr	Lys	Glu	Pro	Lys	Leu	Val	Leu	Tyr	Thr	Asn	Ser
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Ile	Gln	Thr	Gly	Cys	Gly	Ile	Gly	Glu	Ser	Ala	Ser	Gly	Pro	Phe	Tyr
									130		135		140		
Cys	Ser	Ala	Asp	Lys	Lys	Ile	Tyr	Leu	Asp	Ile	Ser	Phe	Tyr	Asn	Glu
145									150		155		160		
Leu	Ser	His	Lys	Tyr	Gly	Ala	Thr	Gly	Asp	Phe	Ala	Met	Ala	Tyr	Val
									165		170		175		
Ile	Ala	His	Glu	Val	Gly	His	His	Ile	Gln	Thr	Glu	Leu	Gly	Ile	Met
									180		185		190		
Asp	Lys	Tyr	Asn	Arg	Met	Arg	His	Gly	Leu	Thr	Lys	Glu	Ala	Asn	
									195		200		205		
Ala	Leu	Asn	Val	Arg	Leu	Glu	Leu	Gln	Ala	Asp	Tyr	Tyr	Ala	Gly	Val
									210		215		220		
Trp	Ala	His	Tyr	Ile	Arg	Gly	Lys	Asn	Leu	Leu	Glu	Gln	Gly	Asp	Phe
225									225		235		240		
Glu	Glu	Ala	Met	Asn	Ala	Ala	His	Ala	Val	Gly	Asp	Asp	Thr	Leu	Gln
									245		250		255		
Lys	Glu	Thr	Tyr	Gly	Lys	Leu	Val	Pro	Asp	Ser	Phe	Thr	His	Gly	Thr
									260		265		270		
Ala	Glu	Gln	Arg	Gln	Arg	Trp	Phe	Asn	Lys	Gly	Phe	Gln	Tyr	Gly	Asp
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<211> 1242
<212> DNA

<400> 49						
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cttttgcac	gaaaagctaa	ggctactcaa	gaacatgtt	tgtattttg	tgctataaact	240
gtgtatcgac	caactgtcac	agttaaatgt	ggtgataaaa	tcacagctgg	tcacagctta	300
gttcaatatg	ataacaacaac	tgccacaagca	gcctacgaca	ctgctaatcg	tcaattaaat	360
aaatgttcggc	gtcaggattna	taatcttaaag	acaacaggaa	gtcttcacgc	tatggatca	420
agtgtatcaat	ctttttccatc	atccaaggaa	caaggggactc	atcgactag	tggttcgacg	480
aatcgctcac	agccaaattna	tcaaaatgtt	gctaatacg	catacaacca	aaacttcaa	540
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aatgtatctg	tttattatcg	tgacgtatca	gggacatgtt	ttgaatgtta	tagtgtat	660
gtccaggctt	caaaaactag	tcagaatctt	gttccatgt	caactgttgg	ttaatccaa	720
gtacaaaggaa	cgatgatgt	gtatgtttt	gctaatacg	aaaaagccca	ggctgttaaa	780
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tatcccaaggaa	caagaacaa	caacaatgtac	tcttaatacg	gtcttagtgc	tgtaattat	900
aaatataaaag	tagatattac	tagccccctc	gatgcattaa	aacaagggtt	taccgtatca	960
gttgaaatggat	ttatggaga	taaggccctt	atgtccctta	caagtctgt	gataaaacaa	1020
gataataaac	actttttttt	ggatataat	gatcttaatc	gtaaaaattt	caaagggttga	1080
gtccaaatgtt	gttaaaatgt	tgctaaagaca	caagaatattt	tatcgatgtt	gaaaggcggaa	1140
caaatctgtgg	ttaactatcc	aaatggaaac	ttcaaggatgt	ggccaaaaat	tgataatatt	1200
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<210> 50
<211> 41
<212> PR
<213> St

<400> 50

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<400> 50
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      20          25          30
Val Gln Ser Gln Pro Asn Lys Ser Ala Val Lys Thr Asn Tyr Lys Val
      35          40          45
Phe Asn Val Arg Glu Gly Ser Val Ser Ser Ser Thr Leu Leu Thr Gly
      50          55          60
Lys Ala Lys Ala Asn Gln Glu Gln Tyr Val Tyr Phe Asp Ala Asn Lys
      65          70          75          80
Gly Asn Arg Ala Thr Val Thr Val Lys Val Gly Asp Lys Ile Thr Ala
      85          90          95
Gly Gln Gln Leu Val Gln Tyr Asp Thr Thr Thr Ala Gln Ala Ala Tyr
      100         105         110
Asp Thr Ala Asn Arg Gln Leu Asn Lys Val Ala Arg Gln Ile Asn Asn
      115         120         125
Leu Lys Thr Thr Gly Ser Leu Pro Ala Met Glu Ser Ser Asp Gln Ser
      130         135         140

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Ser Ser Ser Ser Gln Gly Gln Gly Thr Gln Ser Thr Ser Gly Ala Thr
 145 150 155 160
 Asn Arg Leu Gln Gln Asn Tyr Gln Ser Gln Ala Asn Ala Ser Tyr Asn
 165 170 175
 Gln Gln Leu Gln Asp Leu Asn Asp Ala Tyr Ala Asp Ala Gln Ala Glu
 180 185 190
 Val Asn Lys Ala Gln Lys Ala Leu Asn Asp Thr Val Ile Thr Ser Asp
 195 200 205
 Val Ser Gly Thr Val Val Glu Val Asn Ser Asp Ile Asp Pro Ala Ser
 210 215 220
 Lys Thr Ser Gln Val Leu Val His Val Ala Thr Glu Gly Lys Leu Gln
 225 230 235 240
 Val Gln Gly Thr Met Ser Glu Tyr Asp Leu Ala Asn Val Lys Lys Asp
 245 250 255
 Gln Ala Val Lys Ile Lys Ser Lys Val Tyr Pro Asp Lys Glu Trp Glu
 260 265 270
 Gly Lys Ile Ser Tyr Ile Ser Asn Tyr Pro Glu Ala Glu Ala Asn Asn
 275 280 285
 Asn Asp Ser Asn Asn Gly Ser Ser Ala Val Asn Tyr Lys Tyr Lys Val
 290 295 300
 Asp Ile Thr Ser Pro Leu Asp Ala Leu Lys Gln Gly Phe Thr Val Ser
 305 310 315 320
 Val Glu Val Val Asn Gly Asp Lys His Leu Ile Val Pro Thr Ser Ser
 325 330 335
 Val Ile Asn Lys Asp Asn Lys His Phe Val Trp Val Tyr Asn Asp Ser
 340 345 350
 Asn Arg Lys Ile Ser Lys Val Glu Val Lys Ile Gly Lys Ala Asp Ala
 355 360 365
 Lys Thr Gln Glu Ile Leu Ser Gly Leu Lys Ala Gly Gln Ile Val Val
 370 375 380
 Thr Asn Pro Ser Lys Thr Phe Lys Asp Gly Gln Lys Ile Asp Asn Ile
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<210> 51

<211> 385

<212> PRT

<213> Streptococcus agalactiae

<400> 51

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 20 25 30
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 35 40 45
 Ala Asn Lys Gly Asn Arg Ala Thr Val Thr Val Lys Val Gly Asp Lys
 50 55 60
 Ile Thr Ala Gly Gln Gln Leu Val Gln Tyr Asp Thr Thr Thr Ala Gln
 65 70 75 80
 Ala Ala Tyr Asp Thr Ala Asn Arg Gln Leu Asn Lys Val Ala Arg Gln
 85 90 95
 Ile Asn Asn Leu Lys Thr Thr Gly Ser Leu Pro Ala Met Glu Ser Ser
 100 105 110

Asp Gln Ser Ser Ser Ser Gln Gly Gln Gly Thr Gln Ser Thr Ser
 115 120 125
 Gly Ala Thr Asn Arg Leu Gln Gln Asn Tyr Gln Ser Gln Ala Asn Ala
 130 135 140
 Ser Tyr Asn Gln Gln Leu Gln Asp Leu Asn Asp Ala Tyr Ala Asp Ala
 145 150 155 160
 Gln Ala Glu Val Asn Lys Ala Gln Lys Ala Leu Asn Asp Thr Val Ile
 165 170 175
 Thr Ser Asp Val Ser Gly Thr Val Val Glu Val Asn Ser Asp Ile Asp
 180 185 190
 Pro Ala Ser Lys Thr Ser Gln Val Leu Val His Val Ala Thr Glu Gly
 195 200 205
 Lys Leu Gln Val Gln Gly Thr Met Ser Glu Tyr Asp Leu Ala Asn Val
 210 215 220
 Lys Lys Asp Gln Ala Val Lys Ile Lys Ser Lys Val Tyr Pro Asp Lys
 225 230 235 240
 Glu Trp Glu Gly Lys Ile Ser Tyr Ile Ser Asn Tyr Pro Glu Ala Glu
 245 250 255
 Ala Asn Asn Asn Asp Ser Asn Asn Gly Ser Ser Ala Val Asn Tyr Lys
 260 265 270
 Tyr Lys Val Asp Ile Thr Ser Pro Leu Asp Ala Leu Lys Gln Gly Phe
 275 280 285
 Thr Val Ser Val Glu Val Val Asn Gly Asp Lys His Leu Ile Val Pro
 290 295 300
 Thr Ser Ser Val Ile Asn Lys Asp Asn Lys His Phe Val Trp Val Tyr
 305 310 315 320
 Asn Asp Ser Asn Arg Lys Ile Ser Lys Val Glu Val Lys Ile Gly Lys
 325 330 335
 Ala Asp Ala Lys Thr Gln Glu Ile Leu Ser Gly Leu Lys Ala Gly Gln
 340 345 350
 Ile Val Val Thr Asn Pro Ser Lys Thr Phe Lys Asp Gly Gln Lys Ile
 355 360 365
 Asp Asn Ile Glu Ser Ile Asp Leu Asn Ser Asn Lys Lys Ser Glu Val
 370 375 380
 Lys
 385

<210> 52
 <211> 930
 <212> DNA
 <213> Streptococcus agalactiae

<400> 52

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ttcaccttatt atggaaaaat ttctgaaaaat ccggaaaaag	taatttaatt tacatattct	180
tacactgggt atttattaaa acttagtgtt aatgtttcaa	gttacagttt agacttagaa	240
aaagatagccc ccgtttttgg taaaacaactg aaagaaggcta	aaaaatttaac tgctgtatgtat	300
acagaagctt ttgcgcaca aaaacctgtat ttaatcatgg	ttttcgatca agatccaaac	360
atcaatactc tgaaaaaaat tgccaccaact tttagtttata	aatatggtc acaaaatttat	420
tttagatgttga tgccagccctt gggggaaatg ttccgttaaaag	aaaaagaagc taatcagtgg	480
gttagccat ggaaaaactaa aactctcgctt gtccaaag	atttacacca tatcttaaag	540
cctaacacta cttttactat tatggatttt tatgataaaa	atatcttatt atatggtaat	600
aattttggac gcgggtggaga actaatctat gattcaactg	gttatgctgc cccagaaaaa	660
gtcaaaaaag atgtctttaa aaaagggtgg ttaccgttt	cgcaagaagc aatcggtat	720

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cttaaaaggaa gtgtatctg gaagaattt ccagctgtca aaaaaggcga catcatagaa
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<210> 53

<211> 310

<212> PRT

<213> Streptococcus agalactiae

<400> 53

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20 25 30
Ser Lys Met Pro Lys Ile Glu Gly Phe Thr Tyr Tyr Gly Lys Ile Pro
35 40 45
Glu Asn Pro Lys Lys Val Ile Asn Phe Thr Tyr Ser Tyr Thr Gly Tyr
50 55 60
Leu Leu Lys Leu Gly Val Asn Val Ser Ser Tyr Ser Leu Asp Leu Glu
65 70 75 80
Lys Asp Ser Pro Val Phe Gly Lys Gln Leu Lys Glu Ala Lys Lys Leu
85 90 95
Thr Ala Asp Asp Thr Glu Ala Ile Ala Ala Gln Lys Pro Asp Leu Ile
100 105 110
Met Val Phe Asp Gln Asp Pro Asn Ile Asn Thr Leu Lys Lys Ile Ala
115 120 125
Pro Thr Leu Val Ile Lys Tyr Gly Ala Gln Asn Tyr Leu Asp Met Met
130 135 140
Pro Ala Leu Gly Lys Val Phe Gly Lys Glu Lys Glu Ala Asn Gln Trp
145 150 155 160
Val Ser Gln Trp Lys Thr Lys Thr Leu Ala Val Lys Lys Asp Leu His
165 170 175
His Ile Leu Lys Pro Asn Thr Thr Phe Thr Ile Met Asp Phe Tyr Asp
180 185 190
Lys Asn Ile Tyr Leu Tyr Gly Asn Asn Phe Gly Arg Gly Gly Glu Leu
195 200 205
Ile Tyr Asp Ser Leu Gly Tyr Ala Ala Pro Glu Lys Val Lys Lys Asp
210 215 220
Val Phe Lys Lys Gly Trp Phe Thr Val Ser Gln Glu Ala Ile Gly Asp
225 230 235 240
Tyr Val Gly Asp Tyr Ala Leu Val Asn Ile Asn Lys Thr Thr Lys Lys
245 250 255
Ala Ala Ser Ser Leu Lys Glu Ser Asp Val Trp Lys Asn Leu Pro Ala
260 265 270
Val Lys Lys Gly His Ile Ile Glu Ser Asn Tyr Asp Val Phe Tyr Phe
275 280 285
Ser Asp Pro Leu Ser Leu Glu Ala Gln Leu Lys Ser Phe Thr Lys Ala
290 295 300
Ile Lys Glu Asn Thr Asn
305 310

<210> 54

<211> 272

<212> PRT

<213> Streptococcus agalactiae

<400> 54

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20 25 30
Asn Val Ser Ser Tyr Ser Leu Asp Leu Glu Lys Asp Ser Pro Val Phe
35 40 45
Gly Lys Gln Leu Lys Glu Ala Lys Lys Leu Thr Ala Asp Asp Thr Glu
50 55 60
Ala Ile Ala Ala Gln Lys Pro Asp Leu Ile Met Val Phe Asp Gln Asp
65 70 75 80
Pro Asn Ile Asn Thr Leu Lys Lys Ile Ala Pro Thr Leu Val Ile Lys
85 90 95
Tyr Gly Ala Gln Asn Tyr Leu Asp Met Met Pro Ala Leu Gly Lys Val
100 105 110
Phe Gly Lys Glu Lys Glu Ala Asn Gln Trp Val Ser Gln Trp Lys Thr
115 120 125
Lys Thr Leu Ala Val Lys Lys Asp Leu His His Ile Leu Lys Pro Asn
130 135 140
Thr Thr Phe Thr Ile Met Asp Phe Tyr Asp Lys Asn Ile Tyr Leu Tyr
145 150 155 160
Gly Asn Asn Phe Gly Arg Gly Gly Glu Leu Ile Tyr Asp Ser Leu Gly
165 170 175
Tyr Ala Ala Pro Glu Lys Val Lys Lys Asp Val Phe Lys Lys Gly Trp
180 185 190
Phe Thr Val Ser Gln Glu Ala Ile Gly Asp Tyr Val Gly Asp Tyr Ala
195 200 205
Leu Val Asn Ile Asn Lys Thr Thr Lys Lys Ala Ala Ser Ser Leu Lys
210 215 220
Glu Ser Asp Val Trp Lys Asn Leu Pro Ala Val Lys Lys Gly His Ile
225 230 235 240
Ile Glu Ser Asn Tyr Asp Val Phe Tyr Phe Ser Asp Pro Leu Ser Leu
245 250 255
Glu Ala Gln Leu Lys Ser Phe Thr Lys Ala Ile Lys Glu Asn Thr Asn
260 265 270

<210> 55

<211> 302

<212> PRT

<213> Streptococcus agalactiae

<400> 55

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Ser Lys Met Pro Lys Ile Glu Gly Phe Thr Tyr Gly Lys Ile Pro
35 40 45
Glu Asn Pro Lys Lys Val Ile Asn Phe Thr Tyr Ser Tyr Thr Gly Tyr
50 55 60
Leu Leu Lys Leu Gly Val Asn Val Ser Ser Tyr Ser Leu Asp Leu Glu
65 70 75 80
Lys Asp Ser Pro Val Phe Gly Lys Gln Leu Lys Glu Ala Lys Leu

	85	90	95
Thr Ala Asp Asp Thr Glu Ala Ile Ala Ala Gln Lys Pro Asp Leu Ile			
100	105	110	
Met Val Phe Asp Gln Asp Pro Asn Ile Asn Thr Leu Lys Lys Ile Ala			
115	120	125	
Pro Thr Leu Val Ile Lys Tyr Gly Ala Gln Asn Tyr Leu Asp Met Met			
130	135	140	
Pro Ala Leu Gly Lys Val Phe Gly Lys Glu Lys Glu Ala Asn Gln Trp			
145	150	155	160
Val Ser Gln Trp Lys Thr Lys Thr Leu Ala Val Lys Lys Asp Leu His			
165	170	175	
His Ile Leu Lys Pro Asn Thr Thr Phe Thr Ile Met Asp Phe Tyr Asp			
180	185	190	
Lys Asn Ile Tyr Leu Tyr Gly Asn Asn Phe Gly Arg Gly Gly Glu Leu			
195	200	205	
Ile Tyr Asp Ser Leu Gly Tyr Ala Ala Pro Glu Lys Val Lys Lys Asp			
210	215	220	
Val Phe Lys Lys Gly Trp Phe Thr Val Ser Gln Glu Ala Ile Gly Asp			
225	230	235	240
Tyr Val Gly Asp Tyr Ala Leu Val Asn Ile Asn Lys Thr Thr Lys Lys			
245	250	255	
Ala Ala Ser Ser Leu Lys Glu Ser Asp Val Trp Lys Asn Leu Pro Ala			
260	265	270	
Val Lys Lys Gly His Ile Ile Glu Ser Asn Tyr Asp Val Phe Tyr Phe			
275	280	285	
Ser Asp Pro Leu Ser Leu Glu Ala Gln Leu Lys Ser Phe Thr			
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<210> 56

<211> 264

<212> PRT

<213> Streptococcus agalactiae

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20	25	30	
Asn Val Ser Ser Tyr Ser Leu Asp Leu Glu Lys Asp Ser Pro Val Phe			
35	40	45	
Gly Lys Gln Leu Lys Glu Ala Lys Lys Leu Thr Ala Asp Asp Thr Glu			
50	55	60	
Ala Ile Ala Ala Gln Lys Pro Asp Leu Ile Met Val Phe Asp Gln Asp			
65	70	75	80
Pro Asn Ile Asn Thr Leu Lys Lys Ile Ala Pro Thr Leu Val Ile Lys			
85	90	95	
Tyr Gly Ala Gln Asn Tyr Leu Asp Met Met Pro Ala Leu Gly Lys Val			
100	105	110	
Phe Gly Lys Glu Ala Asn Gln Trp Val Ser Gln Trp Lys Thr			
115	120	125	
Lys Thr Leu Ala Val Lys Lys Asp Leu His His Ile Leu Lys Pro Asn			
130	135	140	
Thr Thr Phe Thr Ile Met Asp Phe Tyr Asp Lys Asn Ile Tyr Leu Tyr			

145

150

155

160

Gly Asn Asn Phe Gly Arg Gly Glu Leu Ile Tyr Asp Ser Leu Gly
 165 170 175
 Tyr Ala Ala Pro Glu Lys Val Lys Lys Asp Val Phe Lys Lys Gly Trp
 180 185 190
 Phe Thr Val Ser Gln Glu Ala Ile Gly Asp Tyr Val Gly Asp Tyr Ala
 195 200 205
 Leu Val Asn Ile Asn Lys Thr Thr Lys Lys Ala Ala Ser Ser Leu Lys
 210 215 220
 Glu Ser Asp Val Trp Lys Asn Leu Pro Ala Val Lys Lys Gly His Ile
 225 230 235 240
 Ile Glu Ser Asn Tyr Asp Val Phe Tyr Phe Ser Asp Pro Leu Ser Leu
 245 250 255
 Glu Ala Gln Leu Lys Ser Phe Thr
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<210> 57

<211> 576

<212> DNA

<213> Streptococcus agalactiae

<400> 57

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acgacccat ctgaggagaa aagatcagat gaactagacc agtcttagtc tggtttttct	180
tctggaaaatg aatccgtatgc atcaatgtaa ccagaacaaatccgtcaac taatccaccc	240
acaaacagac acatcgcaacc ctcacccatgaa gaagagaaaca acgcttgatgg tagaacgaa	300
acagaaattg gcaataataa ggatatttct agtggaaaca aagtattaaat ttcagaagat	360
agtattaaaga attttagtaa agcaagatg gatcaagaag aagtggatcg cgatgaatca	420
tcatcttcaa aagcaaataa tgggaaaaaa ggccacatgaa acctaaaaa ggaacttcc	480
aaaacaggag atagccactc agataactgtaa atagcatcta cggggggat tattctgtta	540
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<210> 58

<211> 192

<212> PRT

<213> Streptococcus agalactiae

<400> 58

Met Lys Val Lys Asn Lys Ile Leu Thr Met Val Ala Leu Thr Val Leu	
1 5 10 15	
Thr Cys Ala Thr Tyr Ser Ser Ile Gly Tyr Ala Asp Thr Ser Asp Lys	
20 25 30	
Asn Thr Asp Thr Ser Val Val Thr Thr Leu Ser Glu Glu Lys Arg	
35 40 45	
Ser Asp Glu Leu Asp Gln Ser Ser Thr Gly Ser Ser Ser Glu Asn Glu	
50 55 60	
Ser Ser Ser Ser Ser Glu Pro Glu Thr Asn Pro Ser Thr Asn Pro Pro	
65 70 75 80	
Thr Thr Glu Pro Ser Gln Pro Ser Pro Ser Glu Glu Asn Lys Pro Asp	
85 90 95	
Gly Arg Thr Lys Thr Glu Ile Gly Asn Asn Lys Asp Ile Ser Ser Gly	
100 105 110	
Thr Lys Val Leu Ile Ser Glu Asp Ser Ile Lys Asn Phe Ser Lys Ala	

115	120	125
Ser Ser Asp Gln Glu Glu Val Asp Arg Asp Glu Ser Ser Ser Ser Lys		
130	135	140
Ala Asn Asp Gly Lys Lys Gly His Ser Lys Pro Lys Lys Glu Leu Pro		
145	150	155
Lys Thr Gly Asp Ser His Ser Asp Thr Val Ile Ala Ser Thr Gly Gly		
165	170	175
Ile Ile Leu Leu Ser Leu Ser Phe Tyr Asn Lys Lys Met Lys Leu Tyr		
180	185	190

<210> 59

<211> 165

<212> PRT

<213> Streptococcus agalactiae

<400> 59

Asp Thr Ser Asp Lys Asn Thr Asp Thr Ser Val Val Thr Thr Thr Leu			
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Ser Glu Glu Lys Arg Ser Asp Glu Leu Asp Gln Ser Ser Thr Gly Ser			
20	25	30	
Ser Ser Glu Asn Glu Ser Ser Ser Ser Glu Pro Glu Thr Asn Pro			
35	40	45	
Ser Thr Asn Pro Pro Thr Thr Glu Pro Ser Gln Pro Ser Pro Ser Glu			
50	55	60	
Glu Asn Lys Pro Asp Gly Arg Thr Lys Thr Glu Ile Gly Asn Asn Lys			
65	70	75	80
Asp Ile Ser Ser Gly Thr Lys Val Leu Ile Ser Glu Asp Ser Ile Lys			
85	90	95	
Asn Phe Ser Lys Ala Ser Ser Asp Gln Glu Glu Val Asp Arg Asp Glu			
100	105	110	
Ser Ser Ser Ser Lys Ala Asn Asp Gly Lys Lys Gly His Ser Lys Pro			
115	120	125	
Lys Lys Glu Leu Pro Lys Thr Gly Asp Ser His Ser Asp Thr Val Ile			
130	135	140	
Ala Ser Thr Gly Gly Ile Ile Leu Leu Ser Leu Ser Phe Tyr Asn Lys			
145	150	155	160
Lys Met Lys Leu Tyr			
165			

<210> 60

<211> 140

<212> PRT

<213> Streptococcus agalactiae

<400> 60

Asp Gln Ser Ser Thr Gly Ser Ser Ser Glu Asn Glu Ser Ser Ser Ser			
1	5	10	15
Ser Glu Pro Glu Thr Asn Pro Ser Thr Asn Pro Pro Thr Thr Glu Pro			
20	25	30	
Ser Gln Pro Ser Pro Ser Glu Glu Asn Lys Pro Asp Gly Arg Thr Lys			
35	40	45	
Thr Glu Ile Gly Asn Asn Lys Asp Ile Ser Ser Gly Thr Lys Val Leu			
50	55	60	
Ile Ser Glu Asp Ser Ile Lys Asn Phe Ser Lys Ala Ser Ser Asp Gln			
65	70	75	80

Glu	Glu	Val	Asp	Arg	Asp	Glu	Ser	Ser	Ser	Lys	Ala	Asn	Asp	Gly	
						85				90				95	
Lys	Lys	Gly	His	Ser	Lys	Pro	Lys	Lys	Glu	Leu	Pro	Lys	Thr	Gly	Asp
						100			105				110		
Ser	His	Ser	Asp	Thr	Val	Ile	Ala	Ser	Thr	Gly	Gly	Ile	Ile	Leu	Leu
						115			120				125		
Ser	Leu	Ser	Phe	Tyr	Asn	Lys	Lys	Met	Lys	Leu	Tyr				
						130			135				140		

<210> 61

<211> 158

<212> PRT

<213> Streptococcus agalactiae

<400> 61

Met	Lys	Val	Lys	Asn	Lys	Ile	Leu	Thr	Met	Val	Ala	Leu	Thr	Val	Leu
1						5			10				15		
Thr	Cys	Ala	Thr	Tyr	Ser	Ser	Ile	Gly	Tyr	Ala	Asp	Thr	Ser	Asp	Lys
							20		25				30		
Asn	Thr	Asp	Thr	Ser	Val	Val	Thr	Thr	Leu	Ser	Glu	Glu	Lys	Arg	
						35		40				45			
Ser	Asp	Glu	Leu	Asp	Gln	Ser	Ser	Thr	Gly	Ser	Ser	Ser	Glu	Asn	Glu
						50		55				60			
Ser	Ser	Ser	Ser	Glu	Pro	Glu	Thr	Asn	Pro	Ser	Thr	Asn	Pro	Pro	
					65		70		75				80		
Thr	Thr	Glu	Pro	Ser	Gln	Pro	Ser	Pro	Ser	Glu	Glu	Asn	Lys	Pro	Asp
						85		90				95			
Gly	Arg	Thr	Lys	Thr	Glu	Ile	Gly	Asn	Asn	Lys	Asp	Ile	Ser	Ser	Gly
						100		105				110			
Thr	Lys	Val	Leu	Ile	Ser	Glu	Asp	Ser	Ile	Lys	Asn	Phe	Ser	Lys	Ala
						115		120				125			
Ser	Ser	Asp	Gln	Glu	Glu	Val	Asp	Arg	Asp	Glu	Ser	Ser	Ser	Ser	Lys
						130		135				140			
Ala	Asn	Asp	Gly	Lys	Lys	Gly	His	Ser	Lys	Pro	Lys	Lys	Glu		
						145		150				155			

<210> 62

<211> 131

<212> PRT

<213> Streptococcus agalactiae

<400> 62

Asp	Thr	Ser	Asp	Lys	Asn	Thr	Asp	Thr	Ser	Val	Val	Thr	Thr	Leu	
1						5			10			15			
Ser	Glu	Glu	Lys	Arg	Ser	Asp	Glu	Leu	Asp	Gln	Ser	Ser	Thr	Gly	Ser
						20		25				30			
Ser	Ser	Glu	Asn	Glu	Ser	Ser	Ser	Ser	Ser	Glu	Pro	Glu	Thr	Asn	Pro
						35		40				45			
Ser	Thr	Asn	Pro	Pro	Thr	Thr	Glu	Pro	Ser	Gln	Pro	Ser	Pro	Ser	Glu
						50		55				60			
Glu	Asn	Lys	Pro	Asp	Gly	Arg	Thr	Lys	Thr	Glu	Ile	Gly	Asn	Asn	Lys
						65		70			75		80		
Asp	Ile	Ser	Ser	Gly	Thr	Lys	Val	Leu	Ile	Ser	Glu	Asp	Ser	Ile	Lys
						85		90				95			
Asn	Phe	Ser	Lys	Ala	Ser	Ser	Asp	Gln	Glu	Glu	Val	Asp	Arg	Asp	Glu

100	105	110
Ser Ser Ser Ser Lys Ala Asn Asp Gly Lys Lys Gly His Ser Lys Pro		
115	120	125
Lys Lys Glu		
130		

<210> 63
<211> 106
<212> PRT
<213> Streptococcus agalactiae

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<400> 63
Asp Gln Ser Ser Thr Gly Ser Ser Ser Glu Asn Glu Ser Ser Ser Ser
      5          10          15
Ser Glu Pro Glu Thr Asn Pro Ser Thr Asn Pro Pro Thr Thr Glu Pro
      20          25          30
Ser Gln Pro Ser Pro Ser Glu Glu Asn Lys Pro Asp Gly Arg Thr Lys
      35          40          45
Thr Glu Ile Gly Asn Asn Lys Asp Ile Ser Ser Gly Thr Lys Val Leu
      50          55          60
Ile Ser Glu Asp Ser Ile Lys Asn Phe Ser Lys Ala Ser Ser Asp Gln
      65          70          75          80
Glu Glu Val Asp Arg Asp Glu Ser Ser Ser Ser Lys Ala Asn Asp Gly
      85          90          95
Lys Lys Gly His Ser Lys Pro Lys Lys Glu
      100         105

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<210> 64
<211> 924
<212> DNA
<213> *Streptococcus agalactiae*

<400> 64	atggaaaagg tacggaaagg ctttatTTT gttctcgag tagttaccc aatttgctta tgtgttgc tcaaacaag ccagaaaa aatggcttg cagtagtgc tagttttat ccgatattt ccattacaa agcagtTCT ggtgatTTGA atgatattaa aatgatTCGA tcacagtca gttatcatgg ttTGAACCC tcatcaatgg atgttgtcgc cattttat gctgtatcat ttctttatac ttgcacaca cttagaagg gggcgagac ttggaaacct atggtcatc actttcaaat atctgtcaaa gaactttca aaggatTCG ttggataaa gttcatggct tagaagatgt agaggcagaa aaaggatgt atgatTCAC ctgtatgac cctcacactt ggaatgaccct tgtaaaaatg tctggaaagg cacaactcat cgctcacacaa tttagctaaa aggatccaa aaacgtcaag gtttatCAA aaaaatgtca tcaatTTT gacaaggca tggttattgc agagaaggat aagccaaat ttaaaggctgc aaagtctaaa taacttgc tttcacatca agcatctca tacttgatca agcgatACGG attgactcag tttagtttgc caggTCTC aaccggacaa gaaacttagt cttaaaaattt acggccaaatt caggatTTG tggaaacata taaggTTAG acatTTTG ttggaaagg atgttcaccc aaataggctc aaggatgtc ttcaGTTCT cggatTTAA ttgcaagtt aagtccTTA raaggatgc cccaaacaa taaggattac ttggaaaatt ttggaaactaa tcttaaggta cttccaaat ctgtttaatca atag	60 120 180 240 300 360 420 480 540 600 660 720 780 840 900 924
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<210> 65
<211> 307
<212> PRT
<213> Streptococcus agalactiae

<220>
<221> VARIANT
<222> (1)...(307)
<223> Xaa = Any Amino Acid

<400> 65
Met Lys Arg Ile Arg Lys Ser Leu Ile Phe Val Leu Gly Val Val Thr
1 5 10 15
Leu Ile Cys Leu Cys Ala Cys Thr Lys Gln Ser Gln Gln Lys Asn Gly
20 25 30
Leu Ser Val Val Thr Ser Phe Tyr Pro Val Tyr Ser Ile Thr Lys Ala
35 40 45
Val Ser Gly Asp Leu Asn Asp Ile Lys Met Ile Arg Ser Gln Ser Gly
50 55 60
Ile His Gly Phe Glu Pro Ser Ser Ser Asp Val Ala Ala Ile Tyr Asp
65 70 75 80
Ala Asp Leu Phe Leu Tyr His Ser His Thr Leu Glu Ala Trp Ala Arg
85 90 95
Arg Leu Glu Pro Ser Leu His His Ser Lys Val Ser Val Ile Glu Ala
100 105 110
Ser Lys Gly Met Thr Leu Asp Lys Val His Gly Leu Glu Asp Val Glu
115 120 125
Ala Glu Lys Gly Val Asp Glu Ser Thr Leu Tyr Asp Pro His Thr Trp
130 135 140
Asn Asp Pro Val Lys Val Ser Glu Glu Ala Gln Leu Ile Ala Thr Gln
145 150 155 160
Leu Ala Lys Lys Asp Pro Lys Asn Ala Lys Val Tyr Gln Lys Asn Ala
165 170 175
Asp Gln Phe Ser Asp Lys Ala Met Ala Ile Ala Glu Lys Tyr Lys Pro
180 185 190
Lys Phe Lys Ala Ala Lys Ser Lys Tyr Phe Val Thr Ser His Thr Ala
195 200 205
Phe Ser Tyr Leu Ala Lys Arg Tyr Gly Leu Thr Gln Leu Gly Ile Ala
210 215 220
Gly Val Ser Thr Glu Gln Glu Pro Ser Ala Lys Lys Leu Ala Glu Ile
225 230 235 240
Gln Glu Phe Val Lys Thr Tyr Lys Val Lys Thr Ile Phe Val Glu Glu
245 250 255
Gly Val Ser Pro Lys Leu Ala Gln Ala Val Ala Ser Ala Thr Arg Val
260 265 270
Lys Ile Ala Ser Leu Ser Pro Leu Xaa Ala Val Pro Lys Asn Asn Lys
275 280 285
Asp Tyr Leu Glu Asn Leu Glu Thr Asn Leu Lys Val Leu Val Lys Ser
290 295 300
Leu Asn Gln
305

<210> 66
<211> 1134
<212> DNA
<213> Streptococcus agalactiae

<400> 66
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60
120

aacgaaaaat	tacgcttaga	taaaagaagt	aaattaaata	tttcttctcc	tgaagaacct	180
caaataacta	cttaaaaat	taaagcttcat	tttccaaaga	tttcaagacc	taaggatgaa	240
aaaaacaga	aaaaaaa	aatagtcaac	agcttagca	aaactaatcg	cattagaact	300
gcacccatata	ttttagtagc	atccctagtc	attttagtt	ccgttttct	actaactctt	360
tttagttagc	aaaaaaacat	aacagttagt	ggaaatcgc	atacacctga	tgatattttg	420
atagaaaaaa	cgaatattca	aaaaaacat	tattttttt	ctttaatttt	taaacataaa	480
gctattttagc	aacgtttagc	tcgagaagat	gtatggtaa	aaacagctca	gatgacttat	540
caattttcca	ataagttca	tattcaagtt	caagaaaata	agattattgc	atatgcacat	600
acaaggcaag	gatatacc	tgtctggaa	actggaaaaa	aggctgatcc	tgtaaatagt	660
tcagactac	caaaagactt	cttaaatttt	aaccttgata	aggaagatag	tattaagcta	720
ttttaaaat	atttaaaggc	tttagaccc	gattttataa	gtgagatca	ggtgataagt	780
tttagttagt	ctaaaacgcac	acctgaccc	ctgttgttag	atatgcacca	tggaaatagt	840
attagaataat	cattatctaa	atttaaaagaa	agacttccct	tttacaaaca	attaagaag	900
aacctttaagg	aaccttctat	ttttgtatg	gaagtgggag	tttacacaaac	aacaaatacc	960
attgaatcat	ccccgtttaa	agcagaagat	acaaaaaaat	aatcaactga	taaaacacaa	1020
acacaaaatg	gtcagggtgc	ggaaaatagt	caaggacaaa	caataactc	aaataactat	1080
caacaaggac	aacagatgc	aacagagcag	gcacctaacc	ctcaaatgt	taat	1134

<210> 67

<211> 378

<212> PRT

<213> Streptococcus agalactiae

<400> 67

Met	Pro	Lys	Lys	Ser	Asp	Thr	Pro	Glu	Lys	Glu	Glu	Val	Val	Leu
1							5		10					15
Thr	Glu	Trp	Gln	Lys	Arg	Asn	Leu	Glu	Phe	Leu	Lys	Arg	Lys	Glu
							20		25					30
Asp	Glu	Glu	Gln	Lys	Arg	Ile	Asn	Glu	Lys	Leu	Arg	Leu	Asp	Lys
						35		40						45
Arg	Ser	Lys	Leu	Asn	Ile	Ser	Ser	Pro	Glu	Glu	Pro	Gln	Asn	Thr
						50		55						60
Lys	Ile	Lys	Lys	Leu	His	Phe	Pro	Lys	Ile	Ser	Arg	Pro	Lys	Ile
						65		70			75			80
Lys	Lys	Gln	Lys	Glu	Lys	Ile	Val	Asn	Ser	Leu	Ala	Lys	Thr	Asn
						85		90						95
Arg	Ile	Arg	Thr	Ala	Pro	Ile	Phe	Val	Val	Ala	Phe	Leu	Val	Ile
						100		105						110
Val	Ser	Val	Phe	Leu	Leu	Thr	Pro	Phe	Ser	Lys	Gln	Lys	Thr	Ile
						115		120						125
Val	Ser	Gly	Asn	Gln	His	Thr	Pro	Asp	Asp	Ile	Leu	Ile	Glu	Lys
						130		135						140
Asn	Ile	Gln	Lys	Asn	Asp	Tyr	Phe	Phe	Ser	Leu	Ile	Phe	Lys	His
						145		150			155			160
Ala	Ile	Glu	Gln	Arg	Leu	Ala	Ala	Glu	Asp	Val	Trp	Val	Lys	Thr
						165		170						175
Gln	Met	Thr	Tyr	Gln	Phe	Pro	Asn	Lys	Phe	His	Ile	Gln	Val	Gln
						180		185						190
Asn	Lys	Ile	Ile	Ala	Tyr	Ala	His	Thr	Lys	Gln	Gly	Tyr	Gln	Pro
						195		200				205		
Leu	Glu	Thr	Gly	Lys	Lys	Ala	Asp	Pro	Val	Asn	Ser	Ser	Glu	Leu
						210		215			220			
Lys	His	Phe	Leu	Thr	Ile	Asn	Leu	Asp	Lys	Glu	Asp	Ser	Ile	Lys
						225		230			235			240
Leu	Ile	Lys	Asp	Leu	Lys	Ala	Leu	Asp	Pro	Asp	Leu	Ile	Ser	Glu

245		250		255												
Gln	Val	Ile	Ser	Leu	Ala	Asp	Ser	Lys	Thr	Thr	Pro	Asp	Leu	Leu	Leu	
			260					265					270			
Leu	Asp	Met	His	Asp	Gly	Asn	Ser	Ile	Arg	Ile	Pro	Leu	Ser	Lys	Phe	
				275				280					285			
Lys	Glu	Arg	Leu	Pro	Phe	Tyr	Lys	Gln	Ile	Lys	Lys	Asn	Leu	Lys	Glu	
	290					295					300					
Pro	Ser	Ile	Val	Asp	Met	Glu	Val	Gly	Val	Tyr	Thr	Thr	Thr	Asn	Thr	
305					310					315					320	
Ile	Glu	Ser	Thr	Pro	Val	Lys	Ala	Glu	Asp	Thr	Lys	Asn	Lys	Ser	Thr	
						325			330					335		
Asp	Lys	Thr	Gln	Thr	Gln	Asn	Gly	Gln	Val	Ala	Glu	Asn	Ser	Gln	Gly	
						340			345					350		
Gln	Thr	Asn	Ser	Asn	Thr	Asn	Gln	Gln	Gly	Gln	Gln	Ile	Ala	Thr		
					355			360					365			
Glu	Gln	Ala	Pro	Asn	Pro	Gln	Asn	Val	Asn							
				370				375								

<210> 68
<211> 3699
<212> DNA
<213> Stre

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gcaacagcat	tatatagtgaa	agaggataag	gcgtttttt	caccacgtca	gcaagggtc	1920
ggtgttagtg	atgtcgaaaa	agctatccaa	gctcatattt	atatactgg	aaacgatggc	1980
aaagctaaa	ttaaatctcaa	acgaatggaa	gataaattt	atatacagt	tacaatcat	2040
aaactttag	aagggtgtca	agaatgttat	tataaagctta	atgtacaaac	agaacaagta	2100
ataaaaggta	aatttgcct	taaaccacaa	gccttgcgt	atactaattt	gcagaaagta	2160
attcttcgt	ataaaagaaa	acaagttcg	tttactattt	atgtctgtca	atttagttag	2220
aaattaaaag	aacagatggc	aaatgtttat	ttctttagaa	gtttttgtacg	ttttaaagaa	2280
gccaaggata	ataatcgaa	gttaatcgat	atccctttt	taggattta	tggtgattt	2340
gccaacttac	aagacttga	aaacccgatt	tataagacgc	tttctaaagg	tagtttctac	2400
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gaaaggcaaca	actatactgc	cttggtaaca	caatcagct	cttggggcta	tgttgattat	2520
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acttttggaa	ataagggttga	ggataaaaaca	attcatctt	tggaaaagaga	tgcagcga	2640
aatccatatt	ttgcattttc	tccaaataaa	gatggaaaata	gggacgaaat	cactccccag	2700
gcaacttct	gtaaagatgt	taaggattat	tgtctcaag	ttctagatca	aatatggaaat	2760
gttatttggc	aaagtaagg	tttacccat	tatgtttaaa	attttccat	taatccaaag	2820
caaagtgtat	gtcattatcg	tatggatgt	cttcgttga	gtgggttaga	taaggatggc	2880
aaagtgttag	catatgtttt	ttatattat	cgcttacgtt	acacacagt	agcagaagga	2940
gcaaaatagtc	aggagtca	ctttaaaatg	caagtaatgt	ctaagtcc	aaatcttctt	3000
tcacgagtc	atgttgcata	aactaatcg	acataatgt	tagccatgcc	taaggaaat	3060
agttatgttc	ctatcatcg	tttacatcg	ttttttatctc	atgttgaaa	agatgaaat	3120
tatggggatg	agacttctt	ccatttttc	catatagatc	aagaaggtaa	agtgcacatt	3180
cctaaaaacgg	ttaatgttag	agaggtgt	gttgcgttag	acccttaaggc	cttgacactt	3240
gttggaaatg	ataaaatcg	taatttgc	acggtaaaaat	tgtctgtat	cttgaataag	3300
gcaagtatgt	cagagaaaga	aaacgtata	gttattttct	acagtttca	atattttgtat	3360
aacttggaaa	aaaagcacat	gtttttttt	aaaaaaagaaa	aagttagaaa	caagaatctta	3420
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ataactaaat	caggaatgt	gaaagtcc	acttctcaa	acaataatag	tagcagatca	3540
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<210> 69

<211> 1233

<212> PRT

<213> Streptococcus agalactiae

<400> 69

Val	Asp	Lys	His	His	Ser	Lys	Ala	Ile	Leu	Lys	Leu	Leu	Thr	Leu	Ile
1						5			10				15		
Thr	Thr	Ser	Ile	Leu	Leu	Met	His	Ser	Asn	Gln	Val	Asn	Ala	Glu	Glu
			20					25				30			
Gln	Glu	Leu	Lys	Asn	Gln	Glu	Gln	Ser	Pro	Val	Ile	Ala	Asn	Val	Ala
			35				40				45				
Gln	Gln	Pro	Ser	Pro	Ser	Val	Thr	Thr	Asn	Thr	Val	Glu	Lys	Thr	Ser
			50			55			60						
Val	Thr	Ala	Ala	Ser	Ala	Ser	Asn	Thr	Ala	Lys	Glu	Met	Gly	Asp	Thr
			65				70			75			80		
Ser	Val	Lys	Asn	Asp	Lys	Thr	Glu	Asp	Glu	Leu	Leu	Glu	Glu	Leu	Ser
			85				90				95				
Lys	Asn	Leu	Asp	Thr	Ser	Asn	Leu	Gly	Ala	Asp	Leu	Glu	Glu	Tyr	
			100				105				110				
Pro	Ser	Lys	Pro	Glu	Thr	Thr	Asn	Asn	Lys	Glu	Ser	Asn	Val	Val	Thr
			115				120				125				

Asn Ala Ser Thr Ala Ile Ala Gln Lys Val Pro Ser Ala Tyr Glu Glu
 130 135 140
 Val Lys Pro Glu Ser Lys Ser Ser Leu Ala Val Leu Asp Thr Ser Lys
 145 150 155 160
 Ile Thr Lys Leu Gln Ala Ile Thr Gln Arg Gly Lys Gly Asn Val Val
 165 170 175
 Ala Ile Ile Asp Thr Gly Phe Asp Ile Asn His Asp Ile Phe Arg Leu
 180 185 190
 Asp Ser Pro Lys Asp Asp Lys His Ser Phe Lys Thr Lys Thr Glu Phe
 195 200 205
 Glu Glu Leu Lys Ala Lys His Asn Ile Thr Tyr Gly Lys Trp Val Asn
 210 215 220
 Asp Lys Ile Val Phe Ala His Asn Tyr Ala Asn Asn Thr Glu Thr Val
 225 230 235 240
 Ala Asp Ile Ala Ala Met Lys Asp Gly Tyr Gly Ser Glu Ala Lys
 245 250 255
 Asn Ile Ser His Gly Thr His Val Ala Gly Ile Phe Val Gly Asn Ser
 260 265 270
 Lys Arg Pro Ala Ile Asn Gly Leu Leu Leu Glu Gly Ala Ala Pro Asn
 275 280 285
 Ala Gln Val Leu Leu Met Arg Ile Pro Asp Lys Ile Asp Ser Asp Lys
 290 295 300
 Phe Gly Glu Ala Tyr Ala Lys Ala Ile Thr Asp Ala Val Asn Leu Gly
 305 310 315 320
 Ala Lys Thr Ile Asn Met Ser Ile Gly Lys Thr Ala Asp Ser Leu Ile
 325 330 335
 Ala Leu Asn Asp Lys Val Lys Leu Ala Leu Lys Leu Ala Ser Glu Lys
 340 345 350
 Gly Val Ala Val Val Val Ala Ala Gly Asn Glu Gly Ala Phe Gly Met
 355 360 365
 Asp Tyr Ser Lys Pro Leu Ser Thr Asn Pro Asp Tyr Gly Thr Val Asn
 370 375 380
 Ser Pro Ala Ile Ser Glu Asp Thr Leu Ser Val Ala Ser Tyr Glu Ser
 385 390 395 400
 Leu Lys Thr Ile Ser Glu Val Val Glu Thr Thr Ile Glu Gly Lys Leu
 405 410 415
 Val Lys Leu Pro Ile Val Thr Ser Lys Pro Phe Asp Lys Gly Lys Ala
 420 425 430
 Tyr Asp Val Val Tyr Ala Asn Tyr Gly Ala Lys Lys Asp Phe Glu Gly
 435 440 445
 Lys Asp Phe Lys Gly Lys Ile Ala Leu Ile Glu Arg Gly Gly Leu
 450 455 460
 Asp Phe Met Thr Lys Ile Thr His Ala Thr Asn Ala Gly Val Val Gly
 465 470 475 480
 Ile Val Ile Phe Asn Asp Gln Glu Lys Arg Gly Asn Phe Leu Ile Pro
 485 490 495
 Tyr Arg Glu Leu Pro Val Gly Ile Ile Ser Lys Val Asp Gly Glu Arg
 500 505 510
 Ile Lys Asn Thr Ser Ser Gln Leu Thr Phe Asn Gln Ser Phe Glu Val
 515 520 525
 Val Asp Ser Gln Gly Gly Asn Arg Met Leu Glu Gln Ser Ser Trp Gly
 530 535 540
 Val Thr Ala Glu Gly Ala Ile Lys Pro Asp Val Thr Ala Ser Gly Phe
 545 550 555 560
 Glu Ile Tyr Ser Ser Thr Tyr Asn Asn Gln Tyr Gln Thr Met Ser Gly

565	570	575
Thr Ser Met Ala Ser Pro His Val Ala Gly Leu Met Thr Met Leu Gln		
580	585	590
Ser His Leu Ala Glu Lys Tyr Lys Gly Met Asn Leu Asp Ser Lys Lys		
595	600	605
Leu Leu Glu Leu Ser Lys Asn Ile Leu Met Ser Ser Ala Thr Ala Leu		
610	615	620
Tyr Ser Glu Glu Asp Lys Ala Phe Tyr Ser Pro Arg Gln Gln Gly Ala		
625	630	635
Gly Val Val Asp Ala Glu Lys Ala Ile Gln Ala Gln Tyr Tyr Ile Thr		
645	650	655
Gly Asn Asp Gly Lys Ala Lys Ile Asn Leu Lys Arg Met Gly Asp Lys		
660	665	670
Phe Asp Ile Thr Val Thr Ile His Lys Leu Val Glu Gly Val Lys Glu		
675	680	685
Leu Tyr Tyr Gln Ala Asn Val Ala Thr Glu Gln Val Asn Lys Gly Lys		
690	695	700
Phe Ala Leu Lys Pro Gln Ala Leu Leu Asp Thr Asn Trp Gln Lys Val		
705	710	715
Ile Leu Arg Asp Lys Glu Thr Gln Val Arg Phe Thr Ile Asp Ala Ser		
725	730	735
Gln Phe Ser Gln Lys Leu Lys Glu Gln Met Ala Asn Gly Tyr Phe Leu		
740	745	750
Glu Gly Phe Val Arg Phe Lys Glu Ala Lys Asp Ser Asn Gln Glu Leu		
755	760	765
Met Ser Ile Pro Phe Val Gly Phe Asn Gly Asp Phe Ala Asn Leu Gln		
770	775	780
Ala Leu Glu Thr Pro Ile Tyr Lys Thr Leu Ser Lys Gly Ser Phe Tyr		
785	790	795
Tyr Lys Pro Asn Asp Thr Thr His Lys Asp Gln Leu Glu Tyr Asn Glu		
805	810	815
Ser Ala Pro Phe Glu Ser Asn Asn Tyr Thr Ala Leu Leu Thr Gln Ser		
820	825	830
Ala Ser Trp Gly Tyr Val Asp Tyr Val Lys Asn Gly Gly Glu Leu Glu		
835	840	845
Leu Ala Pro Glu Ser Pro Lys Arg Ile Ile Leu Gly Thr Phe Glu Asn		
850	855	860
Lys Val Glu Asp Lys Thr Ile His Leu Leu Glu Arg Asp Ala Ala Asn		
865	870	875
Asn Pro Tyr Phe Ala Ile Ser Pro Asn Lys Asp Gly Asn Arg Asp Glu		
885	890	895
Ile Thr Pro Gln Ala Thr Phe Leu Arg Asn Val Lys Asp Ile Ser Ala		
900	905	910
Gln Val Leu Asp Gln Asn Gly Asn Val Ile Trp Gln Ser Lys Val Leu		
915	920	925
Pro Ser Tyr Arg Lys Asn Phe His Asn Asn Pro Lys Gln Ser Asp Gly		
930	935	940
His Tyr Arg Met Asp Ala Leu Gln Trp Ser Gly Leu Asp Lys Asp Gly		
945	950	955
Lys Val Val Ala Asp Gly Phe Tyr Thr Tyr Arg Leu Arg Tyr Thr Pro		
965	970	975
Val Ala Glu Gly Ala Asn Ser Gln Glu Ser Asp Phe Lys Val Gln Val		
980	985	990
Ser Thr Lys Ser Pro Asn Leu Pro Ser Arg Ala Gln Phe Asp Glu Thr		
995	1000	1005

Asn Arg Thr Leu Ser Leu Ala Met Pro Lys Glu Ser Ser Tyr Val Pro
 1010 1015 1020
 Thr Tyr Arg Leu Gln Leu Val Leu Ser His Val Val Lys Asp Glu Glu
 1025 1030 1035 1040
 Tyr Gly Asp Glu Thr Ser Tyr His Tyr Phe His Ile Asp Gln Glu Gly
 1045 1050 1055
 Lys Val Thr Leu Pro Lys Thr Val Lys Ile Gly Glu Ser Glu Val Ala
 1060 1065 1070
 Val Asp Pro Lys Ala Leu Thr Leu Val Val Glu Asp Lys Ala Gly Asn
 1075 1080 1085
 Phe Ala Thr Val Lys Leu Ser Asp Leu Leu Asn Lys Ala Val Val Ser
 1090 1095 1100
 Glu Lys Glu Asn Ala Ile Val Ile Ser Asn Ser Phe Lys Tyr Phe Asp
 1105 1110 1115 1120
 Asn Leu Lys Lys Glu Pro Met Phe Ile Ser Lys Lys Glu Lys Val Val
 1125 1130 1135
 Asn Lys Asn Leu Glu Glu Ile Ile Leu Val Lys Pro Gln Thr Thr Val
 1140 1145 1150
 Thr Thr Gln Ser Leu Ser Lys Glu Ile Thr Lys Ser Gly Asn Glu Lys
 1155 1160 1165
 Val Leu Thr Ser Thr Asn Asn Ser Ser Arg Val Ala Lys Ile Ile
 1170 1175 1180
 Ser Pro Lys His Asn Gly Asp Ser Val Asn His Thr Leu Pro Ser Thr
 1185 1190 1195 1200
 Ser Asp Arg Ala Thr Asn Gly Leu Phe Val Gly Thr Leu Ala Leu Leu
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 Ser Ser Leu Leu Leu Tyr Leu Lys Pro Lys Lys Thr Lys Asn Asn Ser
 1220 1225 1230
 Lys

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 Val Ala Gln Gln Pro Ser Pro Ser Val Thr Thr Asn Thr Val Glu Lys
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 Thr Ser Val Thr Ala Ala Ser Ala Ser Asn Thr Ala Lys Glu Met Gly
 35 40 45
 Asp Thr Ser Val Lys Asn Asp Lys Thr Glu Asp Glu Leu Leu Glu Glu
 50 55 60
 Leu Ser Lys Asn Leu Asp Thr Ser Asn Leu Gly Ala Asp Leu Glu Glu
 65 70 75 80
 Glu Tyr Pro Ser Lys Pro Glu Thr Thr Asn Asn Lys Glu Ser Asn Val
 85 90 95
 Val Thr Asn Ala Ser Thr Ala Ile Ala Gln Lys Val Pro Ser Ala Tyr
 100 105 110
 Glu Glu Val Lys Pro Glu Ser Lys Ser Ser Leu Ala Val Leu Asp Thr
 115 120 125
 Ser Lys Ile Thr Lys Leu Gln Ala Ile Thr Gln Arg Gly Lys Gly Asn
 130 135 140

Val Val Ala Ile Ile Asp Thr Gly Phe Asp Ile Asn His Asp Ile Phe
 145 150 155 160
 Arg Leu Asp Ser Pro Lys Asp Asp Lys His Ser Phe Lys Thr Lys Thr
 165 170 175
 Glu Phe Glu Glu Leu Lys Ala Lys His Asn Ile Thr Tyr Gly Lys Trp
 180 185 190
 Val Asn Asp Lys Ile Val Phe Ala His Asn Tyr Ala Asn Asn Thr Glu
 195 200 205
 Thr Val Ala Asp Ile Ala Ala Met Lys Asp Gly Tyr Gly Ser Glu
 210 215 220
 Ala Lys Asn Ile Ser His Gly Thr His Val Ala Gly Ile Phe Val Gly
 225 230 235 240
 Asn Ser Lys Arg Pro Ala Ile Asn Gly Leu Leu Leu Glu Gly Ala Ala
 245 250 255
 Pro Asn Ala Gln Val Leu Leu Met Arg Ile Pro Asp Lys Ile Asp Ser
 260 265 270
 Asp Lys Phe Gly Glu Ala Tyr Ala Lys Ala Ile Thr Asp Ala Val Asn
 275 280 285
 Leu Gly Ala Lys Thr Ile Asn Met Ser Ile Gly Lys Thr Ala Asp Ser
 290 295 300
 Leu Ile Ala Leu Asn Asp Lys Val Lys Leu Ala Leu Lys Leu Ala Ser
 305 310 315 320
 Glu Lys Gly Val Ala Val Val Val Ala Ala Gly Asn Glu Gly Ala Phe
 325 330 335
 Gly Met Asp Tyr Ser Lys Pro Leu Ser Thr Asn Pro Asp Tyr Gly Thr
 340 345 350
 Val Asn Ser Pro Ala Ile Ser Glu Asp Thr Leu Ser Val Ala Ser Tyr
 355 360 365
 Glu Ser Leu Lys Thr Ile Ser Glu Val Val Glu Thr Thr Ile Glu Gly
 370 375 380
 Lys Leu Val Lys Leu Pro Ile Val Thr Ser Lys Pro Phe Asp Lys Gly
 385 390 395 400
 Lys Ala Tyr Asp Val Val Tyr Ala Asn Tyr Gly Ala Lys Lys Asp Phe
 405 410 415
 Glu Gly Lys Asp Phe Lys Gly Lys Ile Ala Leu Ile Glu Arg Gly Gly
 420 425 430
 Gly Leu Asp Phe Met Thr Lys Ile Thr His Ala Thr Asn Ala Gly Val
 435 440 445
 Val Gly Ile Val Ile Phe Asn Asp Gln Glu Lys Arg Gly Asn Phe Leu
 450 455 460
 Ile Pro Tyr Arg Glu Leu Pro Val Gly Ile Ile Ser Lys Val Asp Gly
 465 470 475 480
 Glu Arg Ile Lys Asn Thr Ser Ser Gln Leu Thr Phe Asn Gln Ser Phe
 485 490 495
 Glu Val Val Asp Ser Gln Gly Gly Asn Arg Met Leu Glu Gln Ser Ser
 500 505 510
 Trp Gly Val Thr Ala Glu Gly Ala Ile Lys Pro Asp Val Thr Ala Ser
 515 520 525
 Gly Phe Glu Ile Tyr Ser Ser Thr Tyr Asn Asn Gln Tyr Gln Thr Met
 530 535 540
 Ser Gly Thr Ser Met Ala Ser Pro His Val Ala Gly Leu Met Thr Met
 545 550 555 560
 Leu Gln Ser His Leu Ala Glu Lys Tyr Lys Gly Met Asn Leu Asp Ser
 565 570 575
 Lys Lys Leu Leu Glu Leu Ser Lys Asn Ile Leu Met Ser Ser Ala Thr

	580	585	590
Ala Leu Tyr Ser Glu Glu Asp Lys Ala Phe Tyr Ser Pro Arg Gln Gln			
595	600	605	
Gly Ala Gly Val Val Asp Ala Glu Lys Ala Ile Gln Ala Gln Tyr Tyr			
610	615	620	
Ile Thr Gly Asn Asp Gly Lys Ala Lys Ile Asn Leu Lys Arg Met Gly			
625	630	635	640
Asp Lys Phe Asp Ile Thr Val Thr Ile His Lys Leu Val Glu Gly Val			
645	650	655	
Lys Glu Leu Tyr Tyr Gln Ala Asn Val Ala Thr Glu Gln Val Asn Lys			
660	665	670	
Gly Lys Phe Ala Leu Lys Pro Gln Ala Leu Leu Asp Thr Asn Trp Gln			
675	680	685	
Lys Val Ile Leu Arg Asp Lys Glu Thr Gln Val Arg Phe Thr Ile Asp			
690	695	700	
Ala Ser Gln Phe Ser Gln Lys Leu Lys Glu Gln Met Ala Asn Gly Tyr			
705	710	715	720
Phe Leu Glu Gly Phe Val Arg Phe Lys Glu Ala Lys Asp Ser Asn Gln			
725	730	735	
Glu Leu Met Ser Ile Pro Phe Val Gly Phe Asn Gly Asp Phe Ala Asn			
740	745	750	
Leu Gln Ala Leu Glu Thr Pro Ile Tyr Lys Thr Leu Ser Lys Gly Ser			
755	760	765	
Phe Tyr Tyr Lys Pro Asn Asp Thr Thr His Lys Asp Gln Leu Glu Tyr			
770	775	780	
Asn Glu Ser Ala Pro Phe Glu Ser Asn Asn Tyr Thr Ala Leu Leu Thr			
785	790	795	800
Gln Ser Ala Ser Trp Gly Tyr Val Asp Tyr Val Lys Asn Gly Gly Glu			
805	810	815	
Leu Glu Leu Ala Pro Glu Ser Pro Lys Arg Ile Ile Leu Gly Thr Phe			
820	825	830	
Glu Asn Lys Val Glu Asp Lys Thr Ile His Leu Leu Glu Arg Asp Ala			
835	840	845	
Ala Asn Asn Pro Tyr Phe Ala Ile Ser Pro Asn Lys Asp Gly Asn Arg			
850	855	860	
Asp Glu Ile Thr Pro Gln Ala Thr Phe Leu Arg Asn Val Lys Asp Ile			
865	870	875	880
Ser Ala Gln Val Leu Asp Gln Asn Gly Asn Val Ile Trp Gln Ser Lys			
885	890	895	
Val Leu Pro Ser Tyr Arg Lys Asn Phe His Asn Asn Pro Lys Gln Ser			
900	905	910	
Asp Gly His Tyr Arg Met Asp Ala Leu Gln Trp Ser Gly Leu Asp Lys			
915	920	925	
Asp Gly Lys Val Val Ala Asp Gly Phe Tyr Thr Tyr Arg Leu Arg Tyr			
930	935	940	
Thr Pro Val Ala Glu Gly Ala Asn Ser Gln Glu Ser Asp Phe Lys Val			
945	950	955	960
Gln Val Ser Thr Lys Ser Pro Asn Leu Pro Ser Arg Ala Gln Phe Asp			
965	970	975	
Glu Thr Asn Arg Thr Leu Ser Leu Ala Met Pro Lys Glu Ser Ser Tyr			
980	985	990	
Val Pro Thr Tyr Arg Leu Gln Leu Val Leu Ser His Val Val Lys Asp			
995	1000	1005	
Glu Glu Tyr Gly Asp Glu Thr Ser Tyr His Tyr Phe His Ile Asp Gln			
1010	1015	1020	

Glu Gly Lys Val Thr Leu Pro Lys Thr Val Lys Ile Gly Glu Ser Glu
 1025 1030 1035 1040
 Val Ala Val Asp Pro Lys Ala Leu Thr Leu Val Val Glu Asp Lys Ala
 1045 1050 1055
 Gly Asn Phe Ala Thr Val Lys Leu Ser Asp Leu Leu Asn Lys Ala Val
 1060 1065 1070
 Val Ser Glu Lys Glu Asn Ala Ile Val Ile Ser Asn Ser Phe Lys Tyr
 1075 1080 1085
 Phe Asp Asn Leu Lys Lys Glu Pro Met Phe Ile Ser Lys Lys Glu Lys
 1090 1095 1100
 Val Val Asn Lys Asn Leu Glu Glu Ile Ile Leu Val Lys Pro Gln Thr
 1105 1110 1115 1120
 Thr Val Thr Thr Gln Ser Leu Ser Lys Glu Ile Thr Lys Ser Gly Asn
 1125 1130 1135
 Glu Lys Val Leu Thr Ser Thr Asn Asn Ser Ser Arg Val Ala Lys
 1140 1145 1150
 Ile Ile Ser Pro Lys His Asn Gly Asp Ser Val Asn His Thr Leu Pro
 1155 1160 1165
 Ser Thr Ser Asp Arg Ala Thr Asn Gly Leu Phe Val Gly Thr Leu Ala
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 Leu Leu Ser Ser Leu Leu Leu Tyr Leu Lys Pro Lys Lys Thr Lys Asn
 1185 1190 1195 1200
 Asn Ser Lys

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 <212> PRT
 <213> Streptococcus agalactiae

<400> 71
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 Thr Thr Ser Ile Leu Leu Met His Ser Asn Gln Val Asn Ala Glu Glu
 20 25 30
 Gln Glu Leu Lys Asn Gln Glu Gln Ser Pro Val Ile Ala Asn Val Ala
 35 40 45
 Gln Gln Pro Ser Pro Ser Val Thr Thr Asn Thr Val Glu Lys Thr Ser
 50 55 60
 Val Thr Ala Ala Ser Ala Ser Asn Thr Ala Lys Glu Met Gly Asp Thr
 65 70 75 80
 Ser Val Lys Asn Asp Lys Thr Glu Asp Glu Leu Leu Glu Glu Leu Ser
 85 90 95
 Lys Asn Leu Asp Thr Ser Asn Leu Gly Ala Asp Leu Glu Glu Glu Tyr
 100 105 110
 Pro Ser Lys Pro Glu Thr Thr Asn Asn Lys Glu Ser Asn Val Val Thr
 115 120 125
 Asn Ala Ser Thr Ala Ile Ala Gln Lys Val Pro Ser Ala Tyr Glu Glu
 130 135 140
 Val Lys Pro Glu Ser Lys Ser Ser Leu Ala Val Leu Asp Thr Ser Lys
 145 150 155 160
 Ile Thr Lys Leu Gln Ala Ile Thr Gln Arg Gly Lys Gly Asn Val Val
 165 170 175
 Ala Ile Ile Asp Thr Gly Phe Asp Ile Asn His Asp Ile Phe Arg Leu
 180 185 190

Asp Ser Pro Lys Asp Asp Lys His Ser Phe Lys Thr Lys Thr Glu Phe
 195 200 205
 Glu Glu Leu Lys Ala Lys His Asn Ile Thr Tyr Gly Lys Trp Val Asn
 210 215 220
 Asp Lys Ile Val Phe Ala His Asn Tyr Ala Asn Asn Thr Glu Thr Val
 225 230 235 240
 Ala Asp Ile Ala Ala Ala Met Lys Asp Gly Tyr Gly Ser Glu Ala Lys
 245 250 255
 Asn Ile Ser His Gly Thr His Val Ala Gly Ile Phe Val Gly Asn Ser
 260 265 270
 Lys Arg Pro Ala Ile Asn Gly Leu Leu Leu Glu Gly Ala Ala Pro Asn
 275 280 285
 Ala Gln Val Leu Leu Met Arg Ile Pro Asp Lys Ile Asp Ser Asp Lys
 290 295 300
 Phe Gly Glu Ala Tyr Ala Lys Ala Ile Thr Asp Ala Val Asn Leu Gly
 305 310 315 320
 Ala Lys Thr Ile Asn Met Ser Ile Gly Lys Thr Ala Asp Ser Leu Ile
 325 330 335
 Ala Leu Asn Asp Lys Val Lys Leu Ala Leu Lys Leu Ala Ser Glu Lys
 340 345 350
 Gly Val Ala Val Val Val Ala Ala Gly Asn Glu Gly Ala Phe Gly Met
 355 360 365
 Asp Tyr Ser Lys Pro Leu Ser Thr Asn Pro Asp Tyr Gly Thr Val Asn
 370 375 380
 Ser Pro Ala Ile Ser Glu Asp Thr Leu Ser Val Ala Ser Tyr Glu Ser
 385 390 395 400
 Leu Lys Thr Ile Ser Glu Val Val Glu Thr Thr Ile Glu Gly Lys Leu
 405 410 415
 Val Lys Leu Pro Ile Val Thr Ser Lys Pro Phe Asp Lys Gly Lys Ala
 420 425 430
 Tyr Asp Val Val Tyr Ala Asn Tyr Gly Ala Lys Lys Asp Phe Glu Gly
 435 440 445
 Lys Asp Phe Lys Gly Lys Ile Ala Leu Ile Glu Arg Gly Gly Gly Leu
 450 455 460
 Asp Phe Met Thr Lys Ile Thr His Ala Thr Asn Ala Gly Val Val Gly
 465 470 475 480
 Ile Val Ile Phe Asn Asp Gln Glu Lys Arg Gly Asn Phe Leu Ile Pro
 485 490 495
 Tyr Arg Glu Leu Pro Val Gly Ile Ile Ser Lys Val Asp Gly Glu Arg
 500 505 510
 Ile Lys Asn Thr Ser Ser Gln Leu Thr Phe Asn Gln Ser Phe Glu Val
 515 520 525
 Val Asp Ser Gln Gly Gly Asn Arg Met Leu Glu Gln Ser Ser Trp Gly
 530 535 540
 Val Thr Ala Glu Gly Ala Ile Lys Pro Asp Val Thr Ala Ser Gly Phe
 545 550 555 560
 Glu Ile Tyr Ser Ser Thr Tyr Asn Asn Gln Tyr Gln Thr Met Ser Gly
 565 570 575
 Thr Ser Met Ala Ser Pro His Val Ala Gly Leu Met Thr Met Leu Gln
 580 585 590
 Ser His Leu Ala Glu Lys Tyr Lys Gly Met Asn Leu Asp Ser Lys Lys
 595 600 605
 Leu Leu Glu Leu Ser Lys Asn Ile Leu Met Ser Ser Ala Thr Ala Leu
 610 615 620
 Tyr Ser Glu Glu Asp Lys Ala Phe Tyr Ser Pro Arg Gln Gln Gly Ala

625	630	635	640
Gly Val Val Asp Ala Glu Lys Ala Ile Gln Ala Gln Tyr Tyr Ile Thr			
645	650	655	
Gly Asn Asp Gly Lys Ala Lys Ile Asn Leu Lys Arg Met Gly Asp Lys			
660	665	670	
Phe Asp Ile Thr Val Thr Ile His Lys Leu Val Glu Gly Val Lys Glu			
675	680	685	
Leu Tyr Tyr Gln Ala Asn Val Ala Thr Glu Gln Val Asn Lys Gly Lys			
690	695	700	
Phe Ala Leu Lys Pro Gln Ala Leu Leu Asp Thr Asn Trp Gln Lys Val			
705	710	715	720
Ile Leu Arg Asp Lys Glu Thr Gln Val Arg Phe Thr Ile Asp Ala Ser			
725	730	735	
Gln Phe Ser Gln Lys Leu Lys Glu Gln Met Ala Asn Gly Tyr Phe Leu			
740	745	750	
Glu Gly Phe Val Arg Phe Lys Glu Ala Lys Asp Ser Asn Gln Glu Leu			
755	760	765	
Met Ser Ile Pro Phe Val Gly Phe Asn Gly Asp Phe Ala Asn Leu Gln			
770	775	780	
Ala Leu Glu Thr Pro Ile Tyr Lys Thr Leu Ser Lys Gly Ser Phe Tyr			
785	790	795	800
Tyr Lys Pro Asn Asp Thr Thr His Lys Asp Gln Leu Glu Tyr Asn Glu			
805	810	815	
Ser Ala Pro Phe Glu Ser Asn Asn Tyr Thr Ala Leu Leu Thr Gln Ser			
820	825	830	
Ala Ser Trp Gly Tyr Val Asp Tyr Val Lys Asn Gly Gly Glu Leu Glu			
835	840	845	
Leu Ala Pro Glu Ser Pro Lys Arg Ile Ile Leu Gly Thr Phe Glu Asn			
850	855	860	
Lys Val Glu Asp Lys Thr Ile His Leu Leu Glu Arg Asp Ala Ala Asn			
865	870	875	880
Asn Pro Tyr Phe Ala Ile Ser Pro Asn Lys Asp Gly Asn Arg Asp Glu			
885	890	895	
Ile Thr Pro Gln Ala Thr Phe Leu Arg Asn Val Lys Asp Ile Ser Ala			
900	905	910	
Gln Val Leu Asp Gln Asn Gly Asn Val Ile Trp Gln Ser Lys Val Leu			
915	920	925	
Pro Ser Tyr Arg Lys Asn Phe His Asn Asn Pro Lys Gln Ser Asp Gly			
930	935	940	
His Tyr Arg Met Asp Ala Leu Gln Trp Ser Gly Leu Asp Lys Asp Gly			
945	950	955	960
Lys Val Val Ala Asp Gly Phe Tyr Thr Tyr Arg Leu Arg Tyr Thr Pro			
965	970	975	
Val Ala Glu Gly Ala Asn Ser Gln Glu Ser Asp Phe Lys Val Gln Val			
980	985	990	
Ser Thr Lys Ser Pro Asn Leu Pro Ser Arg Ala Gln Phe Asp Glu Thr			
995	1000	1005	
Asn Arg Thr Leu Ser Leu Ala Met Pro Lys Glu Ser Ser Tyr Val Pro			
1010	1015	1020	
Thr Tyr Arg Leu Gln Leu Val Leu Ser His Val Val Lys Asp Glu Glu			
1025	1030	1035	1040
Tyr Gly Asp Glu Thr Ser Tyr His Tyr Phe His Ile Asp Gln Glu Gly			
1045	1050	1055	
Lys Val Thr Leu Pro Lys Thr Val Lys Ile Gly Glu Ser Glu Val Ala			
1060	1065	1070	

Val Asp Pro Lys Ala Leu Thr Leu Val Val Glu Asp Lys Ala Gly Asn
 1075 1080 1085
 Phe Ala Thr Val Lys Leu Ser Asp Leu Leu Asn Lys Ala Val Val Ser
 1090 1095 1100
 Glu Lys Glu Asn Ala Ile Val Ile Ser Asn Ser Phe Lys Tyr Phe Asp
 1105 1110 1115 1120
 Asn Leu Lys Lys Glu Pro Met Phe Ile Ser Lys Lys Glu Lys Val Val
 1125 1130 1135
 Asn Lys Asn Leu Glu Ile Ile Leu Val Lys Pro Gln Thr Thr Val
 1140 1145 1150

Thr Thr Gln Ser Leu Ser Lys Glu Ile Thr Lys Ser Gly Asn Glu Lys
 1155 1160 1165
 Val Leu Thr Ser Thr Asn Asn Asn Ser Ser Arg Val Ala Lys Ile Ile
 1170 1175 1180
 Ser Pro Lys His Asn Gly Asp Ser Val Asn His Thr
 1185 1190 1195

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 <212> PRT
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<400> 72
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 Val Ala Gln Gln Pro Ser Pro Ser Val Thr Thr Asn Thr Val Glu Lys
 20 25 30
 Thr Ser Val Thr Ala Ala Ser Ala Ser Asn Thr Ala Lys Glu Met Gly
 35 40 45
 Asp Thr Ser Val Lys Asn Asp Lys Thr Glu Asp Glu Leu Leu Glu Glu
 50 55 60
 Leu Ser Lys Asn Leu Asp Thr Ser Asn Leu Gly Ala Asp Leu Glu Glu
 65 70 75 80
 Glu Tyr Pro Ser Lys Pro Glu Thr Thr Asn Asn Lys Glu Ser Asn Val
 85 90 95
 Val Thr Asn Ala Ser Thr Ala Ile Ala Gln Lys Val Pro Ser Ala Tyr
 100 105 110
 Glu Glu Val Lys Pro Glu Ser Lys Ser Ser Leu Ala Val Leu Asp Thr
 115 120 125
 Ser Lys Ile Thr Lys Leu Gln Ala Ile Thr Gln Arg Gly Lys Gly Asn
 130 135 140
 Val Val Ala Ile Ile Asp Thr Gly Phe Asp Ile Asn His Asp Ile Phe
 145 150 155 160
 Arg Leu Asp Ser Pro Lys Asp Asp Lys His Ser Phe Lys Thr Lys Thr
 165 170 175
 Glu Phe Glu Glu Leu Lys Ala Lys His Asn Ile Thr Tyr Gly Lys Trp
 180 185 190
 Val Asn Asp Lys Ile Val Phe Ala His Asn Tyr Ala Asn Asn Thr Glu
 195 200 205
 Thr Val Ala Asp Ile Ala Ala Met Lys Asp Gly Tyr Gly Ser Glu
 210 215 220
 Ala Lys Asn Ile Ser His Gly Thr His Val Ala Gly Ile Phe Val Gly
 225 230 235 240
 Asn Ser Lys Arg Pro Ala Ile Asn Gly Leu Leu Leu Gly Ala Ala

245	250	255
Pro Asn Ala Gln Val Leu Leu Met Arg Ile Pro Asp Lys Ile Asp Ser		
260	265	270
Asp Lys Phe Gly Glu Ala Tyr Ala Lys Ala Ile Thr Asp Ala Val Asn		
275	280	285
Leu Gly Ala Lys Thr Ile Asn Met Ser Ile Gly Lys Thr Ala Asp Ser		
290	295	300
Leu Ile Ala Leu Asn Asp Lys Val Lys Leu Ala Leu Lys Leu Ala Ser		
305	310	315
Glu Lys Gly Val Ala Val Val Val Ala Ala Gly Asn Glu Gly Ala Phe		
325	330	335
Gly Met Asp Tyr Ser Lys Pro Leu Ser Thr Asn Pro Asp Tyr Gly Thr		
340	345	350
Val Asn Ser Pro Ala Ile Ser Glu Asp Thr Leu Ser Val Ala Ser Tyr		
355	360	365
Glu Ser Leu Lys Thr Ile Ser Glu Val Val Glu Thr Thr Ile Glu Gly		
370	375	380
Lys Leu Val Lys Leu Pro Ile Val Thr Ser Lys Pro Phe Asp Lys Gly		
385	390	395
Lys Ala Tyr Asp Val Val Tyr Ala Asn Tyr Gly Ala Lys Lys Asp Phe		
405	410	415
Glu Gly Lys Asp Phe Lys Gly Lys Ile Ala Leu Ile Glu Arg Gly Gly		
420	425	430
Gly Leu Asp Phe Met Thr Lys Ile Thr His Ala Thr Asn Ala Gly Val		
435	440	445
Val Gly Ile Val Ile Phe Asn Asp Gln Glu Lys Arg Gly Asn Phe Leu		
450	455	460
Ile Pro Tyr Arg Glu Leu Pro Val Gly Ile Ile Ser Lys Val Asp Gly		
465	470	475
Glu Arg Ile Lys Asn Thr Ser Ser Gln Leu Thr Phe Asn Gln Ser Phe		
485	490	495
Glu Val Val Asp Ser Gln Gly Gly Asn Arg Met Leu Glu Gln Ser Ser		
500	505	510
Trp Gly Val Thr Ala Glu Gly Ala Ile Lys Pro Asp Val Thr Ala Ser		
515	520	525
Gly Phe Glu Ile Tyr Ser Ser Thr Tyr Asn Asn Gln Tyr Gln Thr Met		
530	535	540
Ser Gly Thr Ser Met Ala Ser Pro His Val Ala Gly Leu Met Thr Met		
545	550	555
Leu Gln Ser His Leu Ala Glu Lys Tyr Lys Gly Met Asn Leu Asp Ser		
565	570	575
Lys Lys Leu Leu Glu Leu Ser Lys Asn Ile Leu Met Ser Ser Ala Thr		
580	585	590
Ala Leu Tyr Ser Glu Glu Asp Lys Ala Phe Tyr Ser Pro Arg Gln Gln		
595	600	605
Gly Ala Gly Val Val Asp Ala Glu Lys Ala Ile Gln Ala Gln Tyr Tyr		
610	615	620
Ile Thr Gly Asn Asp Gly Lys Ala Lys Ile Asn Leu Lys Arg Met Gly		
625	630	635
Asp Lys Phe Asp Ile Thr Val Thr Ile His Lys Leu Val Glu Gly Val		
645	650	655
Lys Glu Leu Tyr Tyr Gln Ala Asn Val Ala Thr Glu Gln Val Asn Lys		
660	665	670
Gly Lys Phe Ala Leu Lys Pro Gln Ala Leu Leu Asp Thr Asn Trp Gln		
675	680	685

Lys Val Ile Leu Arg Asp Lys Glu Thr Gln Val Arg Phe Thr Ile Asp
 690 695 700
 Ala Ser Gln Phe Ser Gln Lys Leu Lys Glu Gln Met Ala Asn Gly Tyr
 705 710 715 720
 Phe Leu Glu Gly Phe Val Arg Phe Lys Glu Ala Lys Asp Ser Asn Gln
 725 730 735
 Glu Leu Met Ser Ile Pro Phe Val Gly Phe Asn Gly Asp Phe Ala Asn
 740 745 750
 Leu Gln Ala Leu Glu Thr Pro Ile Tyr Lys Thr Leu Ser Lys Gly Ser
 755 760 765
 Phe Tyr Tyr Lys Pro Asn Asp Thr Thr His Lys Asp Gln Leu Glu Tyr
 770 775 780
 Asn Glu Ser Ala Pro Phe Glu Ser Asn Asn Tyr Thr Ala Leu Leu Thr
 785 790 795 800
 Gln Ser Ala Ser Trp Gly Tyr Val Asp Tyr Val Lys Asn Gly Glu
 805 810 815
 Leu Glu Leu Ala Pro Glu Ser Pro Lys Arg Ile Ile Leu Gly Thr Phe
 820 825 830
 Glu Asn Lys Val Glu Asp Lys Thr Ile His Leu Leu Glu Arg Asp Ala
 835 840 845
 Ala Asn Asn Pro Tyr Phe Ala Ile Ser Pro Asn Lys Asp Gly Asn Arg
 850 855 860
 Asp Glu Ile Thr Pro Gln Ala Thr Phe Leu Arg Asn Val Lys Asp Ile
 865 870 875 880
 Ser Ala Gln Val Leu Asp Gln Asn Gly Asn Val Ile Trp Gln Ser Lys
 885 890 895
 Val Leu Pro Ser Tyr Arg Lys Asn Phe His Asn Asn Pro Lys Gln Ser
 900 905 910
 Asp Gly His Tyr Arg Met Asp Ala Leu Gln Trp Ser Gly Leu Asp Lys
 915 920 925
 Asp Gly Lys Val Val Ala Asp Gly Phe Tyr Thr Tyr Arg Leu Arg Tyr
 930 935 940
 Thr Pro Val Ala Glu Gly Ala Asn Ser Gln Glu Ser Asp Phe Lys Val
 945 950 955 960
 Gln Val Ser Thr Lys Ser Pro Asn Leu Pro Ser Arg Ala Gln Phe Asp
 965 970 975
 Glu Thr Asn Arg Thr Leu Ser Leu Ala Met Pro Lys Glu Ser Ser Tyr
 980 985 990
 Val Pro Thr Tyr Arg Leu Gln Leu Val Leu Ser His Val Val Lys Asp
 995 1000 1005
 Glu Glu Tyr Gly Asp Glu Thr Ser Tyr His Tyr Phe His Ile Asp Gln
 1010 1015 1020
 Glu Gly Lys Val Thr Leu Pro Lys Thr Val Lys Ile Gly Glu Ser Glu
 1025 1030 1035 1040
 Val Ala Val Asp Pro Lys Ala Leu Thr Leu Val Val Glu Asp Lys Ala
 1045 1050 1055
 Gly Asn Phe Ala Thr Val Lys Leu Ser Asp Leu Leu Asn Lys Ala Val
 1060 1065 1070
 Val Ser Glu Lys Glu Asn Ala Ile Val Ile Ser Asn Ser Phe Lys Tyr
 1075 1080 1085

 Phe Asp Asn Leu Lys Lys Glu Pro Met Phe Ile Ser Lys Lys Glu Lys
 1090 1095 1100
 Val Val Asn Lys Asn Leu Glu Glu Ile Ile Leu Val Lys Pro Gln Thr
 1105 1110 1115 1120

Thr	Val	Thr	Thr	Gln	Ser	Leu	Ser	Lys	Glu	Ile	Thr	Lys	Ser	Gly	Asn
				1125				1130							1135
Glu	Lys	Val	Leu	Thr	Ser	Thr	Asn	Asn	Asn	Ser	Ser	Arg	Val	Ala	Lys
				1140			1145					1150			
Ile	Ile	Ser	Pro	Lys	His	Asn	Gly	Asp	Ser	Val	Asn	His	Thr		
				1155			1160				1165				

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<211> 2040
<212> DNA
<213> Streptococcus agalactiae

<400> 73															
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aatactagca	gtatctatgc	taatagtact	gagacaagtg	cttcagtagt	tcctactaca										120
aatactatcg	ttcaaaactaa	tgacagtaat	cctaccggaa	aattttgtatc	agaatcaggaa										180
caatctgtaa	taggtcaagt	aaaacccatag	aatttcgtcg	cgcttacaaac	agtgtacacgg										240
cctcatcata	tttcagcttc	agatgtttta	aaaacaactc	aatcaagtcc	tgtegttgag										300
agtacttcta	cttaagtaac	tgaaagactg	tacaacaaa	aatgggtgtca	agattttagcc										360
aacatgggtg	gaagttgggtca	agttactagt	gaggaactcg	ttaatatggc	atacgtat										420
attgtcaag	aaaacccatc	ttaaatatgc	gtcattacta	ctagacggca	agaagctatt										480
gaaggggtgt	aaaaatctaa	agatccaaat	cagccgttt	taggtgttc	cttggtagtc										540
aagggttag	ggcacagttt	taaagggtgt	gaaacccaat	atggctgtat	ctatgcagat										600
ggaaaaattt	gacacatttgc	cagtagctat	gtcaaaaaat	ataaaaggatt	aggattttt										660
attttaggac	aaacgaaactt	tccagatgt	gggtggcgt	ataatacaga	ttcttaattt										720
tacggctcaa	cgcataatcc	ttgggatctt	gctcataatg	ctggggcgc	ttctgggtga										780
agtgcagcag	ccattgtctg	cggaatgc	ccaaatgtca	gcccgtgtga	tgctgtgtgt										840
tctatccgt	ttccatcttc	ttggacgggc	ttggtagttt	ttaaaaccaa	aaagggattt										900
gtgagtaatg	aaaagccaga	ttcgatatagt	acagcagttc	atttccatt	aactaagtca										960
tcttagagac	cagaaaaattt	attaatctat	cttataaaaa	gcatccaaac	gtctgtatca										1020
gttagtatttt	taaaaatcttt	accaatgtct	tataatgttgc	ttttccaaat	gggaatcagaa										1080
gttagtcaag	atgtcaaaaa	cgttattatg	gacaacgtca	cattttaag	aaaacaagga										1140
ttccaaatgt	caagatgttgc	tttcaatccat	gtatgttagtgc	ttttatgtcc	ttttatgtcc										1200
accttggctt	ttggcatggg	aggagttttt	tcaacaatgg	aaaaaaactt	aaaaaaacat										1260
ggttttacta	aagaagacgt	tgatcttatt	acttgggcag	ttcatgttat	ttatcaaaat										1320
tcagataagg	ctgaaacttac	gaaatcttatt	atggaaaggcc	aaaaacatata	ggatgttatt										1380
cgtagggcaa	ttggaaagct	tcacaaatcg	tttcttattt	ttttatcgcc	aaacgaccgc										1440
agtttagccc	ctctaaatatac	agatccatata	gtaacagagg	aagataaaaag	agcgattttat										1500
aatatgtggaa	acttggggca	agaagaaaaa	attgtctctt	ttatcgcc	gtggggggcc										1560
atgttgtcgta	gaacacccttt	tacacaaatgt	gtaatatgt	caggactccc	agctatcgt										1620
atccccactt	acttatactga	gtctgtttt	cccataggga	cgatgttata	ggcagggtca										1680
aactatgtat	tgtgtttttt	taatgttgc	actttttttt	aaaaacatca	tggttttat										1740
gtttaatgtcc	aaagaataat	agataaaaaaa	gttggaaatcc	tcactggct	aatacagctt										1800
actaaactccc	tctttaaatgc	tcatttcata	ttgttaattt	ttagaaaaaa	tttcacaatgtt										1860
atgtcaatgt	ctatcttcaa	aaaatgttgc	aatatgtctgt	ttttttatata	accatccgtt										1920
atggcatatc	aaaaaggact	ttctaaaaaca	ggtgatatacg	aatcaagctt	atctccagg										1980
tttagtagtaa	cccttttttt	agttttttt	agttttgtaa	caaaaaagaa	tcagaaaaat										2040

<210> 74
<211> 680
<212> PRT
<213> Streptococcus agalactiae

<400> 74
Met Lys Arg Lys Tyr Phe Ile Leu Asn Thr Val Thr Val Leu Thr Leu

1	5	10	15
Ala Ala Ala Met Asn Thr Ser Ser Ile Tyr Ala Asn Ser Thr Glu Thr			
20	25	30	
Ser Ala Ser Val Val Pro Thr Thr Asn Thr Ile Val Gln Thr Asn Asp			
35	40	45	
Ser Asn Pro Thr Ala Lys Phe Val Ser Glu Ser Gly Gln Ser Val Ile			
50	55	60	
Gly Gln Val Lys Pro Asp Asn Ser Ala Ala Leu Thr Thr Val Asp Thr			
65	70	75	80
Pro His His Ile Ser Ala Pro Asp Ala Leu Lys Thr Thr Gln Ser Ser			
85	90	95	
Pro Val Val Glu Ser Thr Ser Thr Lys Leu Thr Glu Glu Thr Tyr Lys			
100	105	110	
Gln Lys Asp Gly Gln Asp Leu Ala Asn Met Val Arg Ser Gly Gln Val			
115	120	125	
Thr Ser Glu Glu Leu Val Asn Met Ala Tyr Asp Ile Ile Ala Lys Glu			
130	135	140	
Asn Pro Ser Leu Asn Ala Val Ile Thr Thr Arg Arg Gln Glu Ala Ile			
145	150	155	160
Glu Glu Ala Arg Lys Leu Lys Asp Thr Asn Gln Pro Phe Leu Gly Val			
165	170	175	
Pro Leu Leu Val Lys Gly Leu Gly His Ser Ile Lys Gly Gly Glu Thr			
180	185	190	
Asn Asn Gly Leu Ile Tyr Ala Asp Gly Lys Ile Ser Thr Phe Asp Ser			
195	200	205	
Ser Tyr Val Lys Lys Tyr Lys Asp Leu Gly Phe Ile Ile Leu Gly Gln			
210	215	220	
Thr Asn Phe Pro Glu Tyr Gly Trp Arg Asn Ile Thr Asp Ser Lys Leu			
225	230	235	240
Tyr Gly Leu Thr His Asn Pro Trp Asp Leu Ala His Asn Ala Gly Gly			
245	250	255	
Ser Ser Gly Gly Ser Ala Ala Ala Ile Ala Ser Gly Met Thr Pro Ile			
260	265	270	
Ala Ser Gly Ser Asp Ala Gly Gly Ser Ile Arg Ile Pro Ser Ser Trp			
275	280	285	
Thr Gly Leu Val Gly Leu Lys Pro Thr Arg Gly Leu Val Ser Asn Glu			
290	295	300	
Lys Pro Asp Ser Tyr Ser Thr Ala Val His Phe Pro Leu Thr Lys Ser			
305	310	315	320
Ser Arg Asp Ala Glu Thr Leu Leu Thr Tyr Leu Lys Lys Ser Asp Gln			
325	330	335	
Thr Leu Val Ser Val Asn Asp Leu Lys Ser Leu Pro Ile Ala Tyr Thr			
340	345	350	
Leu Lys Ser Pro Met Gly Thr Glu Val Ser Gln Asp Ala Lys Asn Ala			
355	360	365	
Ile Met Asp Asn Val Thr Phe Leu Arg Lys Gln Gly Phe Lys Val Thr			
370	375	380	
Glu Ile Asp Leu Pro Ile Asp Gly Arg Ala Leu Met Arg Asp Tyr Ser			
385	390	395	400
Thr Leu Ala Ile Gly Met Gly Gly Ala Phe Ser Thr Ile Glu Lys Asp			
405	410	415	
Leu Lys Lys His Gly Phe Thr Lys Glu Asp Val Asp Pro Ile Thr Trp			
420	425	430	
Ala Val His Val Ile Tyr Gln Asn Ser Asp Lys Ala Glu Leu Lys Lys			
435	440	445	

Ser Ile Met Glu Ala Gln Lys His Met Asp Asp Tyr Arg Lys Ala Met
 450 455 460
 Glu Lys Leu His Lys Gln Phe Pro Ile Phe Leu Ser Pro Thr Thr Ala
 465 470 475 480
 Ser Leu Ala Pro Leu Asn Thr Asp Pro Tyr Val Thr Glu Glu Asp Lys
 485 490 495
 Arg Ala Ile Tyr Asn Met Glu Asn Leu Ser Gln Glu Glu Arg Ile Ala
 500 505 510
 Leu Phe Asn Arg Gln Trp Glu Pro Met Leu Arg Arg Thr Pro Phe Thr
 515 520 525
 Gln Ile Ala Asn Met Thr Gly Leu Pro Ala Ile Ser Ile Pro Thr Tyr
 530 535 540
 Leu Ser Glu Ser Gly Leu Pro Ile Gly Thr Met Leu Met Ala Gly Ala
 545 550 555 560
 Asn Tyr Asp Met Val Leu Ile Lys Phe Ala Thr Phe Phe Glu Lys His
 565 570 575
 His Gly Phe Asn Val Lys Trp Gln Arg Ile Ile Asp Lys Glu Val Lys
 580 585 590
 Pro Ser Thr Gly Leu Ile Gln Pro Thr Asn Ser Leu Phe Lys Ala His
 595 600 605
 Ser Ser Leu Val Asn Leu Glu Glu Asn Ser Gln Val Thr Gln Val Ser
 610 615 620
 Ile Ser Lys Lys Trp Met Lys Ser Ser Val Lys Asn Lys Pro Ser Val
 625 630 635 640
 Met Ala Tyr Gln Lys Ala Leu Pro Lys Thr Gly Asp Thr Glu Ser Ser
 645 650 655
 Leu Ser Pro Val Leu Val Val Thr Leu Leu Leu Ala Cys Phe Ser Phe
 660 665 670
 Val Thr Lys Lys Asn Gln Lys Ser
 675 680

<210> 75

<211> 642

<212> PRT

<213> Streptococcus agalactiae

<400> 75

Thr Thr Asn Thr Ile Val Gln Thr Asn Asp Ser Asn Pro Thr Ala Lys
 1 5 10 15
 Phe Val Ser Glu Ser Gly Gln Ser Val Ile Gly Gln Val Lys Pro Asp
 20 25 30
 Asn Ser Ala Ala Leu Thr Thr Val Asp Thr Pro His His Ile Ser Ala
 35 40 45
 Pro Asp Ala Leu Lys Thr Thr Gln Ser Ser Pro Val Val Glu Ser Thr
 50 55 60
 Ser Thr Lys Leu Thr Glu Glu Thr Tyr Lys Gln Lys Asp Gly Gln Asp
 65 70 75 80
 Leu Ala Asn Met Val Arg Ser Gly Gln Val Thr Ser Glu Glu Leu Val
 85 90 95
 Asn Met Ala Tyr Asp Ile Ile Ala Lys Glu Asn Pro Ser Leu Asn Ala
 100 105 110
 Val Ile Thr Thr Arg Arg Gln Glu Ala Ile Glu Glu Ala Arg Lys Leu
 115 120 125
 Lys Asp Thr Asn Gln Pro Phe Leu Gly Val Pro Leu Leu Val Lys Gly
 130 135 140

Leu Gly His Ser Ile Lys Gly Gly Glu Thr Asn Asn Gly Leu Ile Tyr
 145 150 155 160
 Ala Asp Gly Lys Ile Ser Thr Phe Asp Ser Ser Tyr Val Lys Lys Tyr
 165 170 175
 Lys Asp Leu Gly Phe Ile Ile Leu Gly Gln Thr Asn Phe Pro Glu Tyr
 180 185 190
 Gly Trp Arg Asn Ile Thr Asp Ser Lys Leu Tyr Gly Leu Thr His Asn
 195 200 205
 Pro Trp Asp Leu Ala His Asn Ala Gly Gly Ser Ser Gly Gly Ser Ala
 210 215 220
 Ala Ala Ile Ala Ser Gly Met Thr Pro Ile Ala Ser Gly Ser Asp Ala
 225 230 235 240
 Gly Gly Ser Ile Arg Ile Pro Ser Ser Trp Thr Gly Leu Val Gly Leu
 245 250 255
 Lys Pro Thr Arg Gly Leu Val Ser Asn Glu Lys Pro Asp Ser Tyr Ser
 260 265 270
 Thr Ala Val His Phe Pro Leu Thr Lys Ser Ser Arg Asp Ala Glu Thr
 275 280 285
 Leu Leu Thr Tyr Leu Lys Lys Ser Asp Gln Thr Leu Val Ser Val Asn
 290 295 300
 Asp Leu Lys Ser Leu Pro Ile Ala Tyr Thr Leu Lys Ser Pro Met Gly
 305 310 315 320
 Thr Glu Val Ser Gln Asp Ala Lys Asn Ala Ile Met Asp Asn Val Thr
 325 330 335
 Phe Leu Arg Lys Gln Gly Phe Lys Val Thr Glu Ile Asp Leu Pro Ile
 340 345 350
 Asp Gly Arg Ala Leu Met Arg Asp Tyr Ser Thr Leu Ala Ile Gly Met
 355 360 365
 Gly Gly Ala Phe Ser Thr Ile Glu Lys Asp Leu Lys Lys His Gly Phe
 370 375 380
 Thr Lys Glu Asp Val Asp Pro Ile Thr Trp Ala Val His Val Ile Tyr
 385 390 395 400
 Gln Asn Ser Asp Lys Ala Glu Leu Lys Lys Ser Ile Met Glu Ala Gln
 405 410 415
 Lys His Met Asp Asp Tyr Arg Lys Ala Met Glu Lys Leu His Lys Gln
 420 425 430
 Phe Pro Ile Phe Leu Ser Pro Thr Thr Ala Ser Leu Ala Pro Leu Asn
 435 440 445
 Thr Asp Pro Tyr Val Thr Glu Glu Asp Lys Arg Ala Ile Tyr Asn Met
 450 455 460
 Glu Asn Leu Ser Gln Glu Glu Arg Ile Ala Leu Phe Asn Arg Gln Trp
 465 470 475 480
 Glu Pro Met Leu Arg Arg Thr Pro Phe Thr Gln Ile Ala Asn Met Thr
 485 490 495
 Gly Leu Pro Ala Ile Ser Ile Pro Thr Tyr Leu Ser Glu Ser Gly Leu
 500 505 510
 Pro Ile Gly Thr Met Leu Met Ala Gly Ala Asn Tyr Asp Met Val Leu
 515 520 525
 Ile Lys Phe Ala Thr Phe Phe Glu Lys His His Gly Phe Asn Val Lys
 530 535 540
 Trp Gln Arg Ile Ile Asp Lys Glu Val Lys Pro Ser Thr Gly Leu Ile
 545 550 555 560
 Gln Pro Thr Asn Ser Leu Phe Lys Ala His Ser Ser Leu Val Asn Leu
 565 570 575
 Glu Glu Asn Ser Gln Val Thr Gln Val Ser Ile Ser Lys Lys Trp Met

580	585	590
Lys Ser Ser Val Lys Asn Lys Pro Ser Val Met Ala Tyr Gln Lys Ala		
595	600	605
Leu Pro Lys Thr Gly Asp Thr Glu Ser Ser Leu Ser Pro Val Leu Val		
610	615	620
Val Thr Leu Leu Leu Ala Cys Phe Ser Phe Val Thr Lys Lys Asn Gln		
625	630	635
Lys Ser		640

<210> 76

<211> 637

<212> PRT

<213> Streptococcus agalactiae

<400> 76

Met Lys Arg Lys Tyr Phe Ile Leu Asn Thr Val Thr Val Leu Thr Leu			
1	5	10	15
Ala Ala Ala Met Asn Thr Ser Ser Ile Tyr Ala Asn Ser Thr Glu Thr			
20	25	30	
Ser Ala Ser Val Val Pro Thr Thr Asn Thr Ile Val Gln Thr Asn Asp			
35	40	45	
Ser Asn Pro Thr Ala Lys Phe Val Ser Glu Ser Gly Gln Ser Val Ile			
50	55	60	
Gly Gln Val Lys Pro Asp Asn Ser Ala Ala Leu Thr Thr Val Asp Thr			
65	70	75	80
Pro His His Ile Ser Ala Pro Asp Ala Leu Lys Thr Thr Gln Ser Ser			
85	90	95	
Pro Val Val Glu Ser Thr Ser Thr Lys Leu Thr Glu Glu Thr Tyr Lys			
100	105	110	
Gln Lys Asp Gly Gln Asp Leu Ala Asn Met Val Arg Ser Gly Gln Val			
115	120	125	
Thr Ser Glu Glu Leu Val Asn Met Ala Tyr Asp Ile Ile Ala Lys Glu			
130	135	140	
Asn Pro Ser Leu Asn Ala Val Ile Thr Thr Arg Arg Gln Glu Ala Ile			
145	150	155	160
Glu Glu Ala Arg Lys Leu Lys Asp Thr Asn Gln Pro Phe Leu Gly Val			
165	170	175	
Pro Leu Leu Val Lys Gly Leu Gly His Ser Ile Lys Gly Glu Thr			
180	185	190	
Asn Asn Gly Leu Ile Tyr Ala Asp Gly Lys Ile Ser Thr Phe Asp Ser			
195	200	205	
Ser Tyr Val Lys Lys Tyr Lys Asp Leu Gly Phe Ile Ile Leu Gly Gln			
210	215	220	
Thr Asn Phe Pro Glu Tyr Gly Trp Arg Asn Ile Thr Asp Ser Lys Leu			
225	230	235	240
Tyr Gly Leu Thr His Asn Pro Trp Asp Leu Ala His Asn Ala Gly Gly			
245	250	255	
Ser Ser Gly Gly Ser Ala Ala Ala Ile Ala Ser Gly Met Thr Pro Ile			
260	265	270	
Ala Ser Gly Ser Asp Ala Gly Gly Ser Ile Arg Ile Pro Ser Ser Trp			
275	280	285	
Thr Gly Leu Val Gly Leu Lys Pro Thr Arg Gly Leu Val Ser Asn Glu			
290	295	300	
Lys Pro Asp Ser Tyr Ser Thr Ala Val His Phe Pro Leu Thr Lys Ser			

305	310	315	320
Ser Arg Asp Ala Glu Thr Leu Leu Thr Tyr	Leu Lys Lys Ser Asp Gln		
325	330	335	
Thr Leu Val Ser Val Asn Asp Leu Lys Ser	Leu Pro Ile Ala Tyr Thr		
340	345	350	
Leu Lys Ser Pro Met Gly Thr Glu Val Ser	Gln Asp Ala Lys Asn Ala		
355	360	365	
Ile Met Asp Asn Val Thr Phe Leu Arg Lys	Gln Gly Phe Lys Val Thr		
370	375	380	
Glu Ile Asp Leu Pro Ile Asp Gly Arg Ala	Leu Met Arg Asp Tyr Ser		
385	390	395	400
Thr Leu Ala Ile Gly Met Gly Ala Phe Ser	Thr Ile Glu Lys Asp		
405	410	415	
Leu Lys Lys His Gly Phe Thr Lys Glu Asp	Val Asp Pro Ile Thr Trp		
420	425	430	
Ala Val His Val Ile Tyr Gln Asn Ser Asp	Lys Ala Glu Leu Lys Lys		
435	440	445	
Ser Ile Met Glu Ala Gln Lys His Met Asp	Asp Tyr Arg Lys Ala Met		
450	455	460	
Glu Lys Leu His Lys Gln Phe Pro Ile Phe	Leu Ser Pro Thr Thr Ala		
465	470	475	480
Ser Leu Ala Pro Leu Asn Thr Asp Pro Tyr	Val Thr Glu Glu Asp Lys		
485	490	495	
Arg Ala Ile Tyr Asn Met Glu Asn Leu Ser	Gln Glu Arg Ile Ala		
500	505	510	
Leu Phe Asn Arg Gln Trp Glu Pro Met Leu	Arg Arg Thr Pro Phe Thr		
515	520	525	
Gln Ile Ala Asn Met Thr Gly Leu Pro Ala	Ile Ser Ile Pro Thr Tyr		
530	535	540	
Leu Ser Glu Ser Gly Leu Pro Ile Gly Thr	Met Leu Met Ala Gly Ala		
545	550	555	560
Asn Tyr Asp Met Val Leu Ile Lys Phe Ala	Thr Phe Phe Glu Lys His		
565	570	575	
His Gly Phe Asn Val Lys Trp Gln Arg Ile	Ile Asp Lys Glu Val Lys		
580	585	590	
Pro Ser Thr Gly Leu Ile Gln Pro Thr Asn	Ser Leu Phe Lys Ala His		
595	600	605	
Ser Ser Leu Val Asn Leu Glu Glu Asn Ser	Gln Val Thr Gln Val Ser		
610	615	620	
Ile Ser Lys Lys Trp Met Lys Ser Ser Val	Lys Asn Lys		
625	630	635	

<210> 77

<211> 599

<212> PRT

<213> Streptococcus agalactiae

<400> 77

Thr Thr Asn Thr Ile Val Gln Thr Asn Asp	Ser Asn Pro Thr Ala Lys		
1	5	10	15
Phe Val Ser Glu Ser Gly Gln Ser Val	Ile Gly Gln Val Lys Pro Asp		
20	25	30	
Asn Ser Ala Ala Leu Thr Thr Val Asp Thr	Pro His His Ile Ser Ala		
35	40	45	
Pro Asp Ala Leu Lys Thr Thr Gln Ser Ser	Pro Val Val Glu Ser Thr		

50	55	60
Ser Thr Lys Leu Thr Glu Glu Thr Tyr Lys Gln Lys Asp Gly Gln Asp		
65	70	75
Leu Ala Asn Met Val Arg Ser Gly Gln Val Thr Ser Glu Glu Leu Val		80
85	90	95
Asn Met Ala Tyr Asp Ile Ile Ala Lys Glu Asn Pro Ser Leu Asn Ala		
100	105	110
Val Ile Thr Thr Arg Arg Gln Glu Ala Ile Glu Glu Ala Arg Lys Leu		
115	120	125
Lys Asp Thr Asn Gln Pro Phe Leu Gly Val Pro Leu Leu Val Lys Gly		
130	135	140
Leu Gly His Ser Ile Lys Gly Gly Glu Thr Asn Asn Gly Leu Ile Tyr		
145	150	155
Ala Asp Gly Lys Ile Ser Thr Phe Asp Ser Ser Tyr Val Lys Lys Tyr		
165	170	175
Lys Asp Leu Gly Phe Ile Ile Leu Gly Gln Thr Asn Phe Pro Glu Tyr		
180	185	190
Gly Trp Arg Asn Ile Thr Asp Ser Lys Leu Tyr Gly Leu Thr His Asn		
195	200	205
Pro Trp Asp Leu Ala His Asn Ala Gly Gly Ser Ser Gly Gly Ser Ala		
210	215	220
Ala Ala Ile Ala Ser Gly Met Thr Pro Ile Ala Ser Gly Ser Asp Ala		
225	230	235
Gly Gly Ser Ile Arg Ile Pro Ser Ser Trp Thr Gly Leu Val Gly Leu		
245	250	255
Lys Pro Thr Arg Gly Leu Val Ser Asn Glu Lys Pro Asp Ser Tyr Ser		
260	265	270
Thr Ala Val His Phe Pro Leu Thr Lys Ser Ser Arg Asp Ala Glu Thr		
275	280	285
Leu Leu Thr Tyr Leu Lys Lys Ser Asp Gln Thr Leu Val Ser Val Asn		
290	295	300
Asp Leu Lys Ser Leu Pro Ile Ala Tyr Thr Leu Lys Ser Pro Met Gly		
305	310	315
Thr Glu Val Ser Gln Asp Ala Lys Asn Ala Ile Met Asp Asn Val Thr		
325	330	335
Phe Leu Arg Lys Gln Gly Phe Lys Val Thr Glu Ile Asp Leu Pro Ile		
340	345	350
Asp Gly Arg Ala Leu Met Arg Asp Tyr Ser Thr Leu Ala Ile Gly Met		
355	360	365
Gly Gly Ala Phe Ser Thr Ile Glu Lys Asp Leu Lys Lys His Gly Phe		
370	375	380
Thr Lys Glu Asp Val Asp Pro Ile Thr Trp Ala Val His Val Ile Tyr		
385	390	395
Gln Asn Ser Asp Lys Ala Glu Leu Lys Lys Ser Ile Met Glu Ala Gln		
405	410	415
Lys His Met Asp Asp Tyr Arg Lys Ala Met Glu Lys Leu His Lys Gln		
420	425	430
Phe Pro Ile Phe Leu Ser Pro Thr Ala Ser Leu Ala Pro Leu Asn		
435	440	445
Thr Asp Pro Tyr Val Thr Glu Glu Asp Lys Arg Ala Ile Tyr Asn Met		
450	455	460
Glu Asn Leu Ser Gln Glu Glu Arg Ile Ala Leu Phe Asn Arg Gln Trp		
465	470	475
Glu Pro Met Leu Arg Arg Thr Pro Phe Thr Gln Ile Ala Asn Met Thr		
485	490	495

Gly Leu Pro Ala Ile Ser Ile Pro Thr Tyr Leu Ser Glu Ser Gly Leu
 500 505 510
 Pro Ile Gly Thr Met Leu Met Ala Gly Ala Asn Tyr Asp Met Val Leu
 515 520 525
 Ile Lys Phe Ala Thr Phe Phe Glu Lys His His Gly Phe Asn Val Lys
 530 535 540
 Trp Gln Arg Ile Ile Asp Lys Glu Val Lys Pro Ser Thr Gly Leu Ile
 545 550 555 560
 Gln Pro Thr Asn Ser Leu Phe Lys Ala His Ser Ser Leu Val Asn Leu
 565 570 575
 Glu Glu Asn Ser Gln Val Thr Gln Val Ser Ile Ser Lys Lys Trp Met
 580 585 590
 Lys Ser Ser Val Lys Asn Lys
 595

<210> 78
 <211> 1020
 <212> DNA
 <213> Streptococcus agalactiae

<400> 78
 atgaaacgtta ttgcgtttt aactagtgg tgggacgccc ctggtatgaa cgctgtatc
 cgtgcagttt ttcgtaaagg aattttcgaa ggtatggaa ttacggcat caaccaagg
 tactatggta tggtgacagg ggatattttc cttttggatg ctaattctgt tggggatact
 atcaaccgtt gaggaaacctt ttacgttca gcacgttatac ctgaatttgc tgaacttcaa
 ggtcagctta aagggtttaa acagcttaaa aaacacggtt ttgaagggtt agtagttatc
 ggtgttgcattt gtttgcattt tggtgcattt cgtcttaactg agcacggttt cccacgttt
 ggtgttgcgg gttcaatttta taacgatatac ttgttgcactt actatactat ttgttttgc
 acagcagttt cgacagcagt tgagaatttt gaccgttcc ttgtatacatc agcaagtcat
 aaccgttactt ttgttgcattt ggttatggaa agaaatgcag gagatattccg tctttggtca
 ggtatctgtt cagggtcaga tcaaatattt ttcttcgttca aagagtccaa tatttgatgaa
 gttgtctcaa atgttagatc ttggctatgc gctgtttaaac atcaccaat catgtcctt
 gcagaaagggtt ttatgtggg tgatggatg gcaaaaaaaa ttgaaaggcagc aggagacgtt
 aacgtatcttc ttgtgacgaa tttaggatcat ttgtccctgtt gtttgcattt gacggctctg
 gatctgttctt tagcatctcg tatggagatc tacgtgttc aatttgttcaa agaaggcgtt
 ggtgttgcattt ccacaaacgaa gaaatgggtt aaagtccaaat tttaggttta
 gcagaaaggatc ttgttgcattt gatgttgcattt gatgttgcattt ttataatccg
 cattaaacggc accttcgcattt ggcagactt aatctgttgcacc ttgccaacca aagttagtaaa

<210> 79
 <211> 340
 <212> PRT
 <213> Streptococcus agalactiae

<400> 79
 Met Lys Arg Ile Ala Val Leu Thr Ser Gly Gly Asp Ala Pro Gly Met
 1 5 10 15
 Asn Ala Ala Ile Arg Ala Val Val Arg Lys Ala Ile Ser Glu Gly Met
 20 25 30
 Glu Val Tyr Gly Ile Asn Gln Gly Tyr Tyr Gly Met Val Thr Gly Asp
 35 40 45
 Ile Phe Pro Leu Asp Ala Asn Ser Val Gly Asp Thr Ile Asn Arg Gly
 50 55 60
 Gly Thr Phe Leu Arg Ser Ala Arg Tyr Pro Glu Phe Ala Glu Leu Glu
 65 70 75 80

Gly Gln Leu Lys Gly Ile Glu Gln Leu Lys Lys His Gly Ile Glu Gly
 85 90 95
 Val Val Val Ile Gly Gly Asp Gly Ser Tyr His Gly Ala Met Arg Leu
 100 105 110
 Thr Glu His Gly Phe Pro Ala Val Gly Leu Pro Gly Thr Ile Asp Asn
 115 120 125
 Asp Ile Val Gly Thr Asp Tyr Thr Ile Gly Phe Asp Thr Ala Val Ala
 130 135 140
 Thr Ala Val Glu Asn Leu Asp Arg Leu Arg Asp Thr Ser Ala Ser His
 145 150 155 160
 Asn Arg Thr Phe Val Val Glu Val Met Gly Arg Asn Ala Gly Asp Ile
 165 170 175
 Ala Leu Trp Ser Gly Ile Ala Ala Gly Ala Asp Gln Ile Ile Val Pro
 180 185 190
 Glu Glu Glu Phe Asn Ile Asp Glu Val Val Ser Asn Val Arg Ala Gly
 195 200 205
 Tyr Ala Ala Gly Lys His His Gln Ile Ile Val Leu Ala Glu Gly Val
 210 215 220
 Met Ser Gly Asp Glu Phe Ala Lys Thr Met Lys Ala Ala Gly Asp Asp
 225 230 235 240
 Ser Asp Leu Arg Val Thr Asn Leu Gly His Leu Leu Arg Gly Ser
 245 250 255
 Pro Thr Ala Arg Asp Arg Val Leu Ala Ser Arg Met Gly Ala Tyr Ala
 260 265 270
 Val Gln Leu Leu Lys Glu Gly Arg Gly Gly Leu Ala Val Gly Val His
 275 280 285
 Asn Glu Glu Met Val Glu Ser Pro Ile Leu Gly Leu Ala Glu Glu Gly
 290 295 300
 Ala Leu Phe Ser Leu Thr Asp Glu Gly Lys Ile Val Val Asn Asn Pro
 305 310 315 320
 His Lys Ala Asp Leu Arg Leu Ala Ala Leu Asn Arg Asp Leu Ala Asn
 325 330 335
 Gln Ser Ser Lys
 340

<210> 80

<211> 2070

<212> DNA

<213> Streptococcus agalactiae

<400> 80

atgaaaaaga aaattatttt gaaaagtatgt ttcttcgtt tagtcgcgtt gacttctatt 60
 atgttctcaa gcgtgttcgc ggaccaagtc ggtgtccaaat ttataaggcgt caatgacttt 120
 catggtgac ttgacaatac tggacagca aatatgcctg atggaaaagt tgtaatgct 180
 ggtactgtc ctcaattttaga tgcttatatg gatgacgcctc aaaaagattt caaacaaact 240
 aaccttaatg gtgaaagcat tagggttcaa gcaggcgata tggttggagc aagtccagcc 300
 aactctgggc ttcttcaaga tgaaccaact gtcaaaaattt ttaatgcaat gaatgttgag 360
 tatggcacat tgggtaccca tgaatttgat gaagggttgg cagaatataa tcgtatcgat 420
 actggtaaag cccctgctc agatcttaat attaataata ttacgaaatc atacccacat 480
 gaagctgca aacaagaaat ttagtggca aatgttattt ataaaaggtaa caaacaaattt 540
 ctttcaattt ggaaggctta cgcttataaa atatccctgt taataaccaa aagtgtgac 600
 gtgggttta tcgggatgtt caccaaagat atccccaaacc ttgttcttacg taaaatttat 660
 gaacaatatg aatttttaga tgaagctgaa acaatcgta aatacgccaa agaattacaa 720
 gctaaaaatg tcaaagctat ttagttctc gcacatgtac ctgcaacaaag taaaaatgtat 780
 attgtcgaag gtgaagcgc agaaatgtat aaaaatgtca atcaactctt ccctgtaaaaat 840

agcgttagata	ttgtctttgc	tggacacaat	catcaataata	caaatggct	tgttgtaaa	900
actcgatgg	tacaaggcgt	ctctcaaggaa	aaaggccat	ctgatgtacg	tggtgtctta	960
gatactgata	cacaaggattt	cattgagacc	ccttcagta	aagaatttgc	agtgtctct	1020
ggtaaaaaaa	caggtagtgc	cgatattca	gcccattttg	accaactaa	tatactcglt	1080
aaacaatgg	cagaatgttca	aatttggact	gcccaggat	gtgtcatgt	tacgcgttct	1140
gttgcataag	ataatgttag	tccgttaggc	agcctatca	cagaggctca	actagcaatt	1200
gctcgaaaaa	gctggccaga	tatcgattt	gcccataaa	ataatgttg	cattcgtgt	1260
gacttactca	tcaaaccaga	tggacaatcc	accttggggag	ctgcacaagc	agttcaacct	1320
tttggtaata	tcttacaaatgt	cgtcgaaaatt	actgttagag	atctttataa	agcactcaac	1380
gaacaatagc	acccaaaaaca	aaatttcttc	cttcaataag	ctggctcg	atacacttac	1440
acagataata	aagaggcccg	ggaagaaaca	ccattnaaag	tttlaaaagc	ttataaatca	1500
aatgttgagg	aaataatccat	tgatgcaaaa	tacaatttag	ttataatgt	ctttttatcc	1560
ggtgtgtgt	atggcttgc	aaatcgatgg	aatgcggaaac	ttcttaggac	cattaacccc	1620
gatacagagg	tattttatggc	ctatcatc	gattttagaa	aagctgttaa	aaaagtggc	1680
gttccaaata	ataaaactca	aatctatgtc	actatgtaa	tgtttaatgt	aactattaca	1740
caaaaatgtat	gtacatcat	cattatgg	aaacttttat	tagatcgac	aggaatattac	1800
gttagcacaag	agattgtatc	agacacttta	aaccaaaaca	aatcaaaatc	tacaaaaatc	1860
aacccgtgtaa	ctacatcca	caaaaaacaa	ttacaccaat	ttacagctat	taaccctatg	1920
agaattatgg	gcaaacccat	aaactccat	actgttaaaaat	caaaaat	accaaaaaaca	1980
aactctgaat	atggacaatc	attccatgt	tctgtcttg	gtgttgact	tataggaatt	2040
gtcttaataa	caaagaaaaa	acatatgaaa				2070

<210> 81

<211> 690

<212> PRT

<213> Streptococcus agalactiae

<400> 81

Met	Lys	Lys	Ile	Ile	Leu	Lys	Ser	Ser	Val	Leu	Gly	Leu	Val	Ala	
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Gly	Thr	Ser	Ile	Met	Phe	Ser	Ser	Val	Phe	Ala	Asp	Gln	Val	Gly	Val
								20					25		30
Gln	Val	Ile	Gly	Val	Asn	Asp	Phe	His	Gly	Ala	Leu	Asp	Asn	Thr	Gly
								35					40		45
Thr	Ala	Asn	Met	Pro	Asp	Gly	Lys	Val	Ala	Asn	Ala	Gly	Thr	Ala	Ala
								50					55		60
Gln	Leu	Asp	Ala	Tyr	Met	Asp	Asp	Ala	Gln	Lys	Asp	Phe	Lys	Gln	Thr
								65					70		75
Asn	Pro	Asn	Gly	Glu	Ser	Ile	Arg	Val	Gln	Ala	Gly	Asp	Met	Val	Gly
								85					90		95
Ala	Ser	Pro	Ala	Asn	Ser	Gly	Leu	Leu	Gln	Asp	Glu	Pro	Thr	Val	Lys
								100					105		110
Asn	Phe	Asn	Ala	Met	Asn	Val	Glu	Tyr	Gly	Thr	Leu	Gly	Asn	His	Glu
								115					120		125
Phe	Asp	Glu	Gly	Leu	Ala	Glu	Tyr	Asn	Arg	Ile	Val	Thr	Gly	Lys	Ala
								130					135		140
Pro	Ala	Pro	Asp	Ser	Asn	Ile	Asn	Asn	Ile	Thr	Lys	Ser	Tyr	Pro	His
								145					150		155
Glu	Ala	Ala	Lys	Gln	Glu	Ile	Val	Val	Ala	Asn	Val	Ile	Asp	Lys	Val
								165					170		175
Asn	Lys	Gln	Ile	Pro	Tyr	Asn	Trp	Lys	Pro	Tyr	Ala	Ile	Lys	Asn	Ile
								180					185		190
Pro	Val	Asn	Asn	Lys	Ser	Val	Asn	Val	Gly	Phe	Ile	Gly	Ile	Val	Thr
								195					200		205
Lys	Asp	Ile	Pro	Asn	Leu	Val	Leu	Arg	Lys	Asn	Tyr	Glu	Gln	Tyr	Glu

210	215	220
Phe Leu Asp Glu Ala Glu Thr Ile Val Lys Tyr Ala Lys Glu Leu Gln		
225	230	235
Ala Lys Asn Val Lys Ala Ile Val Val Leu Ala His Val Pro Ala Thr		240
245	250	255
Ser Lys Asn Asp Ile Ala Glu Gly Glu Ala Ala Glu Met Met Lys Lys		
260	265	270
Val Asn Gln Leu Phe Pro Glu Asn Ser Val Asp Ile Val Phe Ala Gly		
275	280	285
His Asn His Gln Tyr Thr Asn Gly Leu Val Gly Lys Thr Arg Ile Val		
290	295	300
Gln Ala Leu Ser Gln Gly Lys Ala Tyr Ala Asp Val Arg Gly Val Leu		
305	310	315
Asp Thr Asp Thr Gln Asp Phe Ile Glu Thr Pro Ser Ala Lys Val Ile		
325	330	335
Ala Val Ala Pro Gly Lys Lys Thr Gly Ser Ala Asp Ile Gln Ala Ile		
340	345	350
Val Asp Gln Ala Asn Thr Ile Val Lys Gln Val Thr Glu Ala Lys Ile		
355	360	365
Gly Thr Ala Glu Val Ser Val Met Ile Thr Arg Ser Val Asp Gln Asp		
370	375	380
Asn Val Ser Pro Val Gly Ser Leu Ile Thr Glu Ala Gln Leu Ala Ile		
385	390	395
Ala Arg Lys Ser Trp Pro Asp Ile Asp Phe Ala Met Thr Asn Asn Gly		
405	410	415
Gly Ile Arg Ala Asp Leu Leu Ile Lys Pro Asp Gly Thr Ile Thr Trp		
420	425	430
Gly Ala Ala Gln Ala Val Gln Pro Phe Gly Asn Ile Leu Gln Val Val		
435	440	445
Glu Ile Thr Gly Arg Asp Leu Tyr Lys Ala Leu Asn Glu Gln Tyr Asp		
450	455	460
Gln Lys Gln Asn Phe Phe Leu Gln Ile Ala Gly Leu Arg Tyr Thr Tyr		
465	470	475
Thr Asp Asn Lys Glu Gly Glu Glu Thr Pro Phe Lys Val Val Lys		
485	490	495
Ala Tyr Lys Ser Asn Gly Glu Glu Ile Asn Pro Asp Ala Lys Tyr Lys		
500	505	510
Leu Val Ile Asn Asp Phe Leu Phe Gly Gly Asp Gly Phe Ala Ser		
515	520	525
Phe Arg Asn Ala Lys Leu Leu Gly Ala Ile Asn Pro Asp Thr Glu Val		
530	535	540
Phe Met Ala Tyr Ile Thr Asp Leu Glu Lys Ala Gly Lys Lys Val Ser		
545	550	555
Val Pro Asn Asn Lys Pro Lys Ile Tyr Val Thr Met Lys Met Val Asn		
565	570	575
Glu Thr Ile Thr Gln Asn Asp Gly Thr His Ser Ile Ile Lys Lys Leu		
580	585	590
Tyr Leu Asp Arg Gln Gly Asn Ile Val Ala Gln Glu Ile Val Ser Asp		
595	600	605
Thr Leu Asn Gln Thr Lys Ser Lys Ser Thr Lys Ile Asn Pro Val Thr		
610	615	620
Thr Ile His Lys Lys Gln Leu His Gln Phe Thr Ala Ile Asn Pro Met		
625	630	635
Arg Asn Tyr Gly Lys Pro Ser Asn Ser Thr Thr Val Lys Ser Lys Gln		640

	645	650	655
Leu Pro Lys Thr Asn Ser Glu Tyr Gly Gln Ser Phe Leu Met Ser Val			
660	665	670	
Phe Gly Val Gly Leu Ile Gly Ile Ala Leu Asn Thr Lys Lys Lys His			
675	680	685	
Met Lys			
690			
<210> 82			
<211> 650			
<212> PRT			
<213> Streptococcus agalactiae			
<400> 82			
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			15
Val Ala Asn Ala Gly Thr Ala Ala Gln Leu Asp Ala Tyr Met Asp Asp	20	25	30
Ala Gln Lys Asp Phe Lys Gln Thr Asn Pro Asn Gly Glu Ser Ile Arg	35	40	45
Val Gln Ala Gly Asp Met Val Gly Ala Ser Pro Ala Asn Ser Gly Leu	50	55	60
Leu Gln Asp Glu Pro Thr Val Lys Asn Phe Asn Ala Met Asn Val Glu	65	70	75
			80
Tyr Gly Thr Leu Gly Asn His Glu Phe Asp Glu Gly Leu Ala Glu Tyr	85	90	95
Asn Arg Ile Val Thr Gly Lys Ala Pro Ala Pro Asp Ser Asn Ile Asn	100	105	110
Asn Ile Thr Lys Ser Tyr Pro His Glu Ala Ala Lys Gln Glu Ile Val	115	120	125
Val Ala Asn Val Ile Asp Lys Val Asn Lys Gln Ile Pro Tyr Asn Trp	130	135	140
Lys Pro Tyr Ala Ile Lys Asn Ile Pro Val Asn Asn Lys Ser Val Asn	145	150	155
			160
Val Gly Phe Ile Gly Ile Val Thr Lys Asp Ile Pro Asn Leu Val Leu	165	170	175
Arg Lys Asn Tyr Glu Gln Tyr Glu Phe Leu Asp Glu Ala Glu Thr Ile	180	185	190
Val Lys Tyr Ala Lys Glu Leu Gln Ala Lys Asn Val Lys Ala Ile Val	195	200	205
Val Leu Ala His Val Pro Ala Thr Ser Lys Asn Asp Ile Ala Glu Gly	210	215	220
Glu Ala Ala Glu Met Met Lys Lys Val Asn Gln Leu Phe Pro Glu Asn	225	230	235
			240
Ser Val Asp Ile Val Phe Ala Gly His Asn His Gln Tyr Thr Asn Gly	245	250	255
Leu Val Gly Lys Thr Arg Ile Val Gln Ala Leu Ser Gln Gly Lys Ala	260	265	270
Tyr Ala Asp Val Arg Gly Val Leu Asp Thr Asp Thr Gln Asp Phe Ile	275	280	285
Glu Thr Pro Ser Ala Lys Val Ile Ala Val Ala Pro Gly Lys Lys Thr	290	295	300
Gly Ser Ala Asp Ile Gln Ala Ile Val Asp Gln Ala Asn Thr Ile Val	305	310	315
			320
Lys Gln Val Thr Glu Ala Lys Ile Gly Thr Ala Glu Val Ser Val Met			

	325	330	335
Ile Thr Arg Ser Val Asp Gln Asp Asn Val Ser Pro Val Gly Ser Leu	340	345	350
	355	360	365
Ile Thr Glu Ala Gln Leu Ala Ile Ala Arg Lys Ser Trp Pro Asp Ile			
	370	375	380
Asp Phe Ala Met Thr Asn Asn Gly Gly Ile Arg Ala Asp Leu Ile			
	385	390	395
Lys Pro Asp Gly Thr Ile Thr Trp Gly Ala Ala Gln Ala Val Gln Pro			400
	405	410	415
Phe Gly Asn Ile Leu Gln Val Val Glu Ile Thr Gly Arg Asp Leu Tyr			
	420	425	430
Lys Ala Leu Asn Glu Gln Tyr Asp Gln Lys Gln Asn Phe Phe Leu Gln			
	435	440	445
Ile Ala Gly Leu Arg Tyr Thr Tyr Thr Asp Asn Lys Glu Gly Gly Glu			
	450	455	460
Glu Thr Pro Phe Lys Val Val Lys Ala Tyr Lys Ser Asn Gly Glu Glu			
	465	470	475
Ile Asn Pro Asp Ala Lys Tyr Lys Leu Val Ile Asn Asp Phe Leu Phe			480
	485	490	495
Gly Gly Gly Asp Gly Phe Ala Ser Phe Arg Asn Ala Lys Leu Leu Gly			
	500	505	510
Ala Ile Asn Pro Asp Thr Glu Val Phe Met Ala Tyr Ile Thr Asp Leu			
	515	520	525
Glu Lys Ala Gly Lys Lys Val Ser Val Pro Asn Asn Lys Pro Lys Ile			
	530	535	540
Tyr Val Thr Met Lys Met Val Asn Glu Thr Ile Thr Gln Asn Asp Gly			
	545	550	555
Thr His Ser Ile Ile Lys Lys Leu Tyr Leu Asp Arg Gln Gly Asn Ile			560
	565	570	575
Val Ala Gln Glu Ile Val Ser Asp Thr Leu Asn Gln Thr Lys Ser Lys			
	580	585	590
Ser Thr Lys Ile Asn Pro Val Thr Thr Ile His Lys Lys Gln Leu His			
	595	600	605
Gln Phe Thr Ala Ile Asn Pro Met Arg Asn Tyr Gly Lys Pro Ser Asn			
	610	615	620
Ser Thr Thr Val Lys Ser Lys Gln Leu Pro Lys Thr Asn Ser Glu Tyr			
	625	630	635
Gly Gln Ser Phe Leu Met Ser Val Phe Gly Val Gly Leu Ile Gly Ile			640
	645	650	
Ala Leu Asn Thr Lys Lys Lys His Met Lys			
	<210> 83		
	<211> 654		
	<212> PRT		
	<213> Streptococcus agalactiae		
	<400> 83		
Met Lys Lys Lys Ile Ile Leu Lys Ser Ser Val Leu Gly Leu Val Ala			
	1	5	10
	Gly Thr Ser Ile Met Phe Ser Ser Val Phe Ala Asp Gln Val Gly Val		15
	20	25	30
Gln Val Ile Gly Val Asn Asp Phe His Gly Ala Leu Asp Asn Thr Gly			
	35	40	45
Thr Ala Asn Met Pro Asp Gly Lys Val Ala Asn Ala Gly Thr Ala Ala			

50	55	60													
Gln	Leu	Asp	Ala	Tyr	Met	Asp	Asp	Ala	Gln	Lys	Asp	Phe	Lys	Gln	Thr
65		70							75						80
Asn	Pro	Asn	Gly	Glu	Ser	Ile	Arg	Val	Gln	Ala	Gly	Asp	Met	Val	Gly
						85			90					95	
Ala	Ser	Pro	Ala	Asn	Ser	Gly	Leu	Leu	Gln	Asp	Glu	Pro	Thr	Val	Lys
				100				105					110		
Asn	Phe	Asn	Ala	Met	Asn	Val	Glu	Tyr	Gly	Thr	Leu	Gly	Asn	His	Glu
				115				120					125		
Phe	Asp	Glu	Gly	Leu	Ala	Glu	Tyr	Asn	Arg	Ile	Val	Thr	Gly	Lys	Ala
				130				135				140			
Pro	Ala	Pro	Asp	Ser	Asn	Ile	Asn	Asn	Ile	Thr	Lys	Ser	Tyr	Pro	His
				145				150			155			160	
Glu	Ala	Ala	Lys	Gln	Glu	Ile	Val	Val	Ala	Asn	Val	Ile	Asp	Lys	Val
				165				170				175			
Asn	Lys	Gln	Ile	Pro	Tyr	Asn	Trp	Lys	Pro	Tyr	Ala	Ile	Lys	Asn	Ile
				180				185				190			
Pro	Val	Asn	Asn	Lys	Ser	Val	Asn	Val	Gly	Phe	Ile	Gly	Ile	Val	Thr
				195				200			205				
Lys	Asp	Ile	Pro	Asn	Leu	Val	Leu	Arg	Lys	Asn	Tyr	Glu	Gln	Tyr	Glu
				210				215			220				
Phe	Leu	Asp	Glu	Ala	Glu	Thr	Ile	Val	Lys	Tyr	Ala	Lys	Glu	Leu	Gln
				225				230			235			240	
Ala	Lys	Asn	Val	Lys	Ala	Ile	Val	Val	Leu	Ala	His	Val	Pro	Ala	Thr
				245				250				255			
Ser	Lys	Asn	Asp	Ile	Ala	Glu	Gly	Glu	Ala	Ala	Glu	Met	Met	Lys	Lys
				260				265				270			
Val	Asn	Gln	Leu	Phe	Pro	Glu	Asn	Ser	Val	Asp	Ile	Val	Phe	Ala	Gly
				275				280				285			
His	Asn	His	Gln	Tyr	Thr	Asn	Gly	Leu	Val	Gly	Lys	Thr	Arg	Ile	Val
				290				295			300				
Gln	Ala	Leu	Ser	Gln	Gly	Lys	Ala	Tyr	Ala	Asp	Val	Arg	Gly	Val	Leu
				305				310			315			320	
Asp	Thr	Asp	Thr	Gln	Asp	Phe	Ile	Glu	Thr	Pro	Ser	Ala	Lys	Val	Ile
				325				330				335			
Ala	Val	Ala	Pro	Gly	Lys	Lys	Thr	Gly	Ser	Ala	Asp	Ile	Gln	Ala	Ile
				340				345				350			
Val	Asp	Gln	Ala	Asn	Thr	Ile	Val	Lys	Gln	Val	Thr	Glu	Ala	Lys	Ile
				355				360			365				
Gly	Thr	Ala	Glu	Val	Ser	Val	Met	Ile	Thr	Arg	Ser	Val	Asp	Gln	Asp
				370				375			380				
Asn	Val	Ser	Pro	Val	Gly	Ser	Leu	Ile	Thr	Glu	Ala	Gln	Leu	Ala	Ile
				385				390			395			400	
Ala	Arg	Lys	Ser	Trp	Pro	Asp	Ile	Asp	Phe	Ala	Met	Thr	Asn	Asn	Gly
				405				410				415			
Gly	Ile	Arg	Ala	Asp	Leu	Leu	Ile	Lys	Pro	Asp	Gly	Thr	Ile	Thr	Trp
				420				425			430				
Gly	Ala	Ala	Gln	Ala	Val	Gln	Pro	Phe	Gly	Asn	Ile	Leu	Gln	Val	Val
				435				440			445				
Glu	Ile	Thr	Gly	Arg	Asp	Leu	Tyr	Lys	Ala	Leu	Asn	Glu	Gln	Tyr	Asp
				450				455			460				
Gln	Lys	Gln	Asn	Phe	Phe	Gln	Ile	Ala	Gly	Leu	Arg	Tyr	Thr	Tyr	480
				465				470			475				
Thr	Asp	Asn	Lys	Glu	Gly	Gly	Glu	Thr	Pro	Phe	Lys	Val	Val	Lys	495
				485				490							

Ala	Tyr	Lys	Ser	Asn	Gly	Glu	Glu	Ile	Asn	Pro	Asp	Ala	Lys	Tyr	Lys
		500				505							510		
Leu	Val	Ile	Asn	Asp	Phe	Leu	Phe	Gly	Gly	Asp	Gly	Phe	Ala	Ser	
		515				520							525		
Phe	Arg	Asn	Ala	Lys	Leu	Leu	Gly	Ala	Ile	Asn	Pro	Asp	Thr	Glu	Val
		530				535							540		
Phe	Met	Ala	Tyr	Ile	Thr	Asp	Leu	Glu	Lys	Ala	Gly	Lys	Lys	Val	Ser
		545				550						555			560
Val	Pro	Asn	Asn	Lys	Pro	Lys	Ile	Tyr	Val	Thr	Met	Lys	Met	Val	Asn
						565					570			575	
Glu	Thr	Ile	Thr	Gln	Asn	Asp	Gly	Thr	His	Ser	Ile	Ile	Lys	Lys	Leu
		580				585							590		
Tyr	Leu	Asp	Arg	Gln	Gly	Asn	Ile	Val	Ala	Gln	Glu	Ile	Val	Ser	Asp
		595				600							605		
Thr	Leu	Asn	Gln	Thr	Lys	Ser	Lys	Ser	Thr	Lys	Ile	Asn	Pro	Val	Thr
		610				615							620		
Thr	Ile	His	Lys	Lys	Gln	Leu	His	Gln	Phe	Thr	Ala	Ile	Asn	Pro	Met
		625				630						635			640
Arg	Asn	Tyr	Gly	Lys	Pro	Ser	Asn	Ser	Thr	Thr	Val	Lys	Ser		
					645						650				

<210> 84

<211> 614

<212> PRT

<213> Streptococcus agalactiae

<400> 84

His	Gly	Ala	Leu	Asp	Asn	Thr	Gly	Thr	Ala	Asn	Met	Pro	Asp	Gly	Lys
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Val	Ala	Asn	Ala	Gly	Thr	Ala	Ala	Gln	Leu	Asp	Ala	Tyr	Met	Asp	Asp
						20			25			30			
Ala	Gln	Lys	Asp	Phe	Lys	Gln	Thr	Asn	Pro	Asn	Gly	Glu	Ser	Ile	Arg
		35				40						45			
Val	Gln	Ala	Gly	Asp	Met	Val	Gly	Ala	Ser	Pro	Ala	Asn	Ser	Gly	Leu
		50				55						60			
Leu	Gln	Asp	Glu	Pro	Thr	Val	Lys	Asn	Phe	Asn	Ala	Met	Asn	Val	Glu
		65				70			75			80			
Tyr	Gly	Thr	Leu	Gly	Asn	His	Glu	Phe	Asp	Glu	Gly	Leu	Ala	Glu	Tyr
		85				90						95			
Asn	Arg	Ile	Val	Thr	Gly	Lys	Ala	Pro	Ala	Pro	Asp	Ser	Asn	Ile	Asn
		100				105						110			
Asn	Ile	Thr	Lys	Ser	Tyr	Pro	His	Glu	Ala	Ala	Lys	Gln	Glu	Ile	Val
		115				120						125			
Val	Ala	Asn	Val	Ile	Asp	Lys	Val	Asn	Lys	Gln	Ile	Pro	Tyr	Asn	Trp
		130				135						140			
Lys	Pro	Tyr	Ala	Ile	Lys	Asn	Ile	Pro	Val	Asn	Asn	Lys	Ser	Val	Asn
		145				150					155			160	
Val	Gly	Phe	Ile	Gly	Ile	Val	Thr	Lys	Asp	Ile	Pro	Asn	Leu	Val	Leu
		165				170						175			
Arg	Lys	Asn	Tyr	Glu	Gln	Tyr	Glu	Phe	Leu	Asp	Glu	Ala	Glu	Thr	Ile
		180				185						190			
Val	Lys	Tyr	Ala	Lys	Glu	Leu	Gln	Ala	Lys	Asn	Val	Lys	Ala	Ile	Val
		195				200						205			
Val	Leu	Ala	His	Val	Pro	Ala	Thr	Ser	Lys	Asn	Asp	Ile	Ala	Glu	Gly
		210				215						220			

Glu Ala Ala Glu Met Met Lys Lys Val Asn Gln Leu Phe Pro Glu Asn
 225 230 235 240
 Ser Val Asp Ile Val Phe Ala Gly His Asn His Gln Tyr Thr Asn Gly
 245 250 255
 Leu Val Gly Lys Thr Arg Ile Val Gln Ala Leu Ser Gln Gly Lys Ala
 260 265 270
 Tyr Ala Asp Val Arg Gly Val Leu Asp Thr Asp Thr Gln Asp Phe Ile
 275 280 285
 Glu Thr Pro Ser Ala Lys Val Ile Ala Val Ala Pro Gly Lys Lys Thr
 290 295 300
 Gly Ser Ala Asp Ile Gln Ala Ile Val Asp Gln Ala Asn Thr Ile Val
 305 310 315 320
 Lys Gln Val Thr Glu Ala Lys Ile Gly Thr Ala Glu Val Ser Val Met
 325 330 335
 Ile Thr Arg Ser Val Asp Gln Asp Asn Val Ser Pro Val Gly Ser Leu
 340 345 350
 Ile Thr Glu Ala Gln Leu Ala Ile Ala Arg Lys Ser Trp Pro Asp Ile
 355 360 365
 Asp Phe Ala Met Thr Asn Asn Gly Gly Ile Arg Ala Asp Leu Leu Ile
 370 375 380
 Lys Pro Asp Gly Thr Ile Thr Trp Gly Ala Ala Gln Ala Val Gln Pro
 385 390 395 400
 Phe Gly Asn Ile Leu Gln Val Val Glu Ile Thr Gly Arg Asp Leu Tyr
 405 410 415
 Lys Ala Leu Asn Glu Gln Tyr Asp Gln Lys Gln Asn Phe Phe Leu Gln
 420 425 430
 Ile Ala Gly Leu Arg Tyr Thr Tyr Asp Asn Lys Glu Gly Gly Glu
 435 440 445
 Glu Thr Pro Phe Lys Val Val Lys Ala Tyr Lys Ser Asn Gly Glu Glu
 450 455 460
 Ile Asn Pro Asp Ala Lys Tyr Lys Leu Val Ile Asn Asp Phe Leu Phe
 465 470 475 480
 Gly Gly Gly Asp Gly Phe Ala Ser Phe Arg Asn Ala Lys Leu Leu Gly
 485 490 495
 Ala Ile Asn Pro Asp Thr Glu Val Phe Met Ala Tyr Ile Thr Asp Leu
 500 505 510
 Glu Lys Ala Gly Lys Lys Val Ser Val Pro Asn Asn Lys Pro Lys Ile
 515 520 525
 Tyr Val Thr Met Lys Met Val Asn Glu Thr Ile Thr Gln Asn Asp Gly
 530 535 540
 Thr His Ser Ile Ile Lys Lys Leu Tyr Leu Asp Arg Gln Gly Asn Ile
 545 550 555 560
 Val Ala Gln Glu Ile Val Ser Asp Thr Leu Asn Gln Thr Lys Ser Lys
 565 570 575
 Ser Thr Lys Ile Asn Pro Val Thr Thr Ile His Lys Lys Gln Leu His
 580 585 590
 Gln Phe Thr Ala Ile Asn Pro Met Arg Asn Tyr Gly Lys Pro Ser Asn
 595 600 605
 Ser Thr Thr Val Lys Ser
 610

<210> 85
 <211> 783
 <212> DNA
 <213> Streptococcus agalactiae

<400> 85
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aattcatctg ttgatcacg ccaggaattt caaaaataatt taaaaaatgc tattgttaac 180
ctaccatcc aatatgttaa tggttattt gaattaataa ataatcagac aaatttaaat 240
gctgatgtca atgtttaaagc gtatgttca aatacaattt acaatcaaca aagactatca 300
actgtcaatgc caatgttca tagaaccatt cgtcaatatc aaaatcgac agataccact 360
cttcccgtat caaatggaa accatttagt tggcatcaag tagctactaa tgaccattat 420
ggacatgcag tcgacaaggg gcatttaatt gcctatgtt tagctggaa ttccaagggt 480
tggatgttc ccgtgtcaaa tcctcaaat gttgtcacac aaacagctca ttccaaccaa 540
tcaaatcaa aatacaatcg tggacaaaat tattatgaa gcttagttcg taaggcggtt 600
gaccaaaaaca aacgtgttcg ttacgttca atccatgtt acgtcaatga tactgattt 660
gttccatgg caatgcacctt agaagctaa tcacaagatg gcacattaga atttaatgtt 720
gctatccaa acacacaacg atcatacact atggattatg caacaggaga aataacacta 780
aat 783

<210> 86
<211> 261
<212> PRT
<213> Streptococcus agalactiae

<400> 86
Met Lys Arg Leu His Lys Leu Phe Ile Thr Val Ile Ala Thr Leu Gly
1 5 10 15
Met Leu Gly Val Met Thr Phe Gly Leu Pro Thr Gln Pro Gln Asn Val
20 25 30
Thr Pro Ile Val His Ala Asp Val Asn Ser Ser Val Asp Thr Ser Gln
35 40 45
Glu Phe Gln Asn Asn Leu Lys Asn Ala Ile Gly Asn Leu Pro Phe Gln
50 55 60
Tyr Val Asn Gly Ile Tyr Glu Leu Asn Asn Asn Gln Thr Asn Leu Asn
65 70 75 80
Ala Asp Val Asn Val Lys Ala Tyr Val Gln Asn Thr Ile Asp Asn Gln
85 90 95
Gln Arg Leu Ser Thr Ala Asn Ala Met Leu Asp Arg Thr Ile Arg Gln
100 105 110
Tyr Gln Asn Arg Arg Asp Thr Thr Leu Pro Asp Ala Asn Trp Lys Pro
115 120 125
Leu Gly Trp His Gln Val Ala Thr Asn Asp His Tyr Gly His Ala Val
130 135 140
Asp Lys Gly His Leu Ile Ala Tyr Ala Leu Ala Gly Asn Phe Lys Gly
145 150 155 160
Trp Asp Ala Ser Val Ser Asn Pro Gln Asn Val Val Thr Gln Thr Ala
165 170 175
His Ser Asn Gln Ser Asn Gln Lys Ile Asn Arg Gly Gln Asn Tyr Tyr
180 185 190
Glu Ser Leu Val Arg Lys Ala Val Asp Gln Asn Lys Arg Val Arg Tyr
195 200 205
Arg Val Thr Pro Leu Tyr Arg Asn Asp Thr Asp Leu Val Pro Phe Ala
210 215 220
Met His Leu Glu Ala Lys Ser Gln Asp Gly Thr Leu Glu Phe Asn Val
225 230 235 240
Ala Ile Pro Asn Thr Gln Ala Ser Tyr Thr Met Asp Tyr Ala Thr Gly
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Glu Ile Thr Leu Asn

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<210> 87

<211> 2703

<212> DNA

<213> Streptococcus agalactiae

<400> 87

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aagttagtt	ttaaaaagac	agatgaccag	aacaacccac	tttceaaagc	tacctttgtt	180
ttaaaaacta	ctgctcatcc	agaagtaaa	atagaaaaag	taactgtga	gctaaaggt	240
gaagctactt	ttgataatct	cataccgtga	gattatactt	tatcagaaga	aacagcgccc	300
gaaggttata	aaaagactaa	ccgacttgg	caagttaaag	ttgagagtt	tggaaaaact	360
acgatacaa	atagtgtga	taaaaattcc	acatgttgc	aaaatcgga	agaacttagat	420
aaggatcgt	cccccacagg	aattttatga	gataaaaaag	aatcttataa	acttgagcat	480
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ggtgtttag	ctcataataa	atataaaaat	gagttaaact	tcagtgaaa	aaccatagta	660
aaacccgtgg	acaaaacaaa	gcccgttagt	gttgtcttc	tactcgataa	ttctaaactca	720
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cttgggaccc	cagtaaaaaga	tattttagga	gcaaaacgtg	ataataggt	tgcatgtt	840
acctatgttt	cagatattt	tgatgttgg	agtgtatgt	tcgtaaaagg	atttaaagaa	900
gatgataaat	attatggct	tc当地at	tc当地atcc	agacagagaa	ttatgtcat	960
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gctaagtgg	gatctactac	caatgttgg	actccagagc	acaaaaggaa	gtactatctt	1080
atgaaatgt	gagaaaaattt	tatctatgg	gccttcatgg	aggcagatga	tattttaggt	1140
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ttaaaaacaga	aaaattatgt	catttttaat	tttggatcg	atatatctgg	tttttagacaa	1560
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gcttttaaac	tttccatgtt	ggaaaatcaca	gaaactatgt	ggtcgttctc	ttccaaacct	1680
gagttactaca	ccccatgtt	aacttcagcc	gatacatctt	acaatgttac	tttatctaa	1740
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gaagatccta	ttttgttata	atcaatattt	cagttgtata	tttccaaaatc	atttgcgtat	1860
agtgtattata	ttttccatgtt	aaatgttgc	agtgtatgt	aggatgtt	tgactactgt	1920
ggcccttaata	atgtgttgg	aaatcttgg	gggttttaat	tttccaaaatt	gaaagaggaa	1980
ctctatgtta	gagggttgg	ttttagggaa	ggtttttttt	tttccaaaatc	tttccaaaatc	2040
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atccatgtt	caaggatgtt	ttatctatgtt	aaatgttata	tttccaaaatc	tttccaaaatc	2160
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gtatataatg	tttccatgtt	aaatgttata	tttccaaaatc	tttccaaaatc	tttccaaaatc	2340
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gaaggcgtt	tttccatgtt	aaatgttata	tttccaaaatc	tttccaaaatc	tttccaaaatc	2460
gttggatata	tttccatgtt	aaatgttata	tttccaaaatc	tttccaaaatc	tttccaaaatc	2520
gaggaaatgt	tttccatgtt	aaatgttata	tttccaaaatc	tttccaaaatc	tttccaaaatc	2580
atgacaggtt	tttccatgtt	aaatgttata	tttccaaaatc	tttccaaaatc	tttccaaaatc	2640
gcagggttggaa	tttccatgtt	aaatgttata	tttccaaaatc	tttccaaaatc	tttccaaaatc	2700
gat						2703

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 <211> 901
 <212> PRT
 <213> Streptococcus agalactiae

<400> 88
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 Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
 35 40 45
 Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
 50 55 60
 Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
 65 70 75 80
 Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
 85 90 95
 Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val
 100 105 110
 Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
 115 120 125
 Asn Ser Thr Ile Gly Gln Asn Glu Glu Leu Asp Lys Gln Tyr Pro
 130 135 140
 Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
 145 150 155 160
 Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg

370	375	380
Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg		
385	390	395
Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln		400
405	410	415
Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu		
420	425	430
Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe		
435	440	445
Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu		
450	455	460
Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr		
465	470	475
Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu		
485	490	495
Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly		
500	505	510
Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys		
515	520	525
Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Lys Leu		
530	535	540
Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro		
545	550	555
Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu		
565	570	575
Ile Leu Ser Lys Ile Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu		
580	585	590
Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile		
595	600	605
Asn Leu Gln Leu Gly Asn Gln Thr Leu Gln Pro Ser Asp Tyr Thr		
610	615	620
Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly		
625	630	635
Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr		
645	650	655
Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gln		
660	665	670
Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser		
675	680	685
Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser		
690	695	700
Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp		
705	710	715
Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly		
725	730	735
Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu		
740	745	750
Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu		
755	760	765
Tyr Leu Pro Ile Lys Asn Asn Ser Lys Val Val Thr Gly Glu Asn		
770	775	780
Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile		
785	790	795
Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile		
805	810	815

Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val
 820 825 830
 Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile
 835 840 845
 Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly
 850 855 860
 Lys Gly Ile Leu Ser Phe Ile Leu Ile Gly Gly Ala Met Met Ser Ile
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 Ala Gly Gly Ile Tyr Ile Trp Lys Arg Tyr Lys Lys Ser Ser Asp Met
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 Ser Ile Lys Lys Asp
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<210> 89

<211> 869

<212> PRT

<213> Streptococcus agalactiae

<400> 89

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 Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp
 35 40 45
 Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr
 50 55 60
 Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly
 65 70 75 80
 Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu
 85 90 95
 Glu Thr Ala Pro Glu Gly Tyr Lys Thr Asn Gln Thr Trp Gln Val
 100 105 110
 Lys Val Glu Ser Asn Gly Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys
 115 120 125
 Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro
 130 135 140
 Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His
 145 150 155 160
 Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285

Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Ala Phe Lys Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile
 595 600 605
 Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr
 610 615 620
 Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly
 625 630 635 640
 Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr
 645 650 655
 Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gln
 660 665 670
 Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser
 675 680 685
 Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser
 690 695 700
 Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp
 705 710 715 720
 Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly

	725	730	735
Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu			
740	745	750	
Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu			
755	760	765	
Tyr Leu Pro Ile Lys Asn Asn Ser Lys Val Val Thr Gly Glu Asn			
770	775	780	
Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile			
785	790	795	800
Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile			
805	810	815	
Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val			
820	825	830	
Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile			
835	840	845	
Thr Asn Thr His Ile Pro Pro Lys Gly Ile Ile Pro Met Thr Gly Gly			
850	855	860	
Lys Gly Ile Leu Ser			
865			

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<211> 5

<212> PRT

<213> Streptococcus agalactiae

<400> 90

Ile Pro Met Thr Gly		
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<210> 91

<211> 858

<212> PRT

<213> Streptococcus agalactiae

<400> 91

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Cys Leu Ser Gln Ile Pro Leu Asn Thr Asn Val Leu Gly Glu Ser Thr			
20	25	30	
Val Pro Glu Asn Gly Ala Lys Gly Lys Leu Val Val Lys Lys Thr Asp			
35	40	45	
Asp Gln Asn Lys Pro Leu Ser Lys Ala Thr Phe Val Leu Lys Thr Thr			
50	55	60	
Ala His Pro Glu Ser Lys Ile Glu Lys Val Thr Ala Glu Leu Thr Gly			
65	70	75	80
Glu Ala Thr Phe Asp Asn Leu Ile Pro Gly Asp Tyr Thr Leu Ser Glu			
85	90	95	
Glu Thr Ala Pro Glu Gly Tyr Lys Lys Thr Asn Gln Thr Trp Gln Val			
100	105	110	
Lys Val Glu Ser Asn Gln Lys Thr Thr Ile Gln Asn Ser Gly Asp Lys			
115	120	125	
Asn Ser Thr Ile Gly Gln Asn Gln Glu Glu Leu Asp Lys Gln Tyr Pro			
130	135	140	
Pro Thr Gly Ile Tyr Glu Asp Thr Lys Glu Ser Tyr Lys Leu Glu His			
145	150	155	160

Val Lys Gly Ser Val Pro Asn Gly Lys Ser Glu Ala Lys Ala Val Asn
 165 170 175
 Pro Tyr Ser Ser Glu Gly Glu His Ile Arg Glu Ile Pro Glu Gly Thr
 180 185 190
 Leu Ser Lys Arg Ile Ser Glu Val Gly Asp Leu Ala His Asn Lys Tyr
 195 200 205
 Lys Ile Glu Leu Thr Val Ser Gly Lys Thr Ile Val Lys Pro Val Asp
 210 215 220
 Lys Gln Lys Pro Leu Asp Val Val Phe Val Leu Asp Asn Ser Asn Ser
 225 230 235 240
 Met Asn Asn Asp Gly Pro Asn Phe Gln Arg His Asn Lys Ala Lys Lys
 245 250 255
 Ala Ala Glu Ala Leu Gly Thr Ala Val Lys Asp Ile Leu Gly Ala Asn
 260 265 270
 Ser Asp Asn Arg Val Ala Leu Val Thr Tyr Gly Ser Asp Ile Phe Asp
 275 280 285
 Gly Arg Ser Val Asp Val Val Lys Gly Phe Lys Glu Asp Asp Lys Tyr
 290 295 300
 Tyr Gly Leu Gln Thr Lys Phe Thr Ile Gln Thr Glu Asn Tyr Ser His
 305 310 315 320
 Lys Gln Leu Thr Asn Asn Ala Glu Glu Ile Ile Lys Arg Ile Pro Thr
 325 330 335
 Glu Ala Pro Lys Ala Lys Trp Gly Ser Thr Thr Asn Gly Leu Thr Pro
 340 345 350
 Glu Gln Gln Lys Glu Tyr Tyr Leu Ser Lys Val Gly Glu Thr Phe Thr
 355 360 365
 Met Lys Ala Phe Met Glu Ala Asp Asp Ile Leu Ser Gln Val Asn Arg
 370 375 380
 Asn Ser Gln Lys Ile Ile Val His Val Thr Asp Gly Val Pro Thr Arg
 385 390 395 400
 Ser Tyr Ala Ile Asn Asn Phe Lys Leu Gly Ala Ser Tyr Glu Ser Gln
 405 410 415
 Phe Glu Gln Met Lys Lys Asn Gly Tyr Leu Asn Lys Ser Asn Phe Leu
 420 425 430
 Leu Thr Asp Lys Pro Glu Asp Ile Lys Gly Asn Gly Glu Ser Tyr Phe
 435 440 445
 Leu Phe Pro Leu Asp Ser Tyr Gln Thr Gln Ile Ile Ser Gly Asn Leu
 450 455 460
 Gln Lys Leu His Tyr Leu Asp Leu Asn Leu Asn Tyr Pro Lys Gly Thr
 465 470 475 480
 Ile Tyr Arg Asn Gly Pro Val Lys Glu His Gly Thr Pro Thr Lys Leu
 485 490 495
 Tyr Ile Asn Ser Leu Lys Gln Lys Asn Tyr Asp Ile Phe Asn Phe Gly
 500 505 510
 Ile Asp Ile Ser Gly Phe Arg Gln Val Tyr Asn Glu Glu Tyr Lys Lys
 515 520 525
 Asn Gln Asp Gly Thr Phe Gln Lys Leu Lys Glu Glu Ala Phe Lys Leu
 530 535 540
 Ser Asp Gly Glu Ile Thr Glu Leu Met Arg Ser Phe Ser Ser Lys Pro
 545 550 555 560
 Glu Tyr Tyr Thr Pro Ile Val Thr Ser Ala Asp Thr Ser Asn Asn Glu
 565 570 575
 Ile Leu Ser Lys Ile Gln Gln Gln Phe Glu Thr Ile Leu Thr Lys Glu
 580 585 590
 Asn Ser Ile Val Asn Gly Thr Ile Glu Asp Pro Met Gly Asp Lys Ile

	595	600	605
Asn Leu Gln Leu Gly Asn Gly Gln Thr Leu Gln Pro Ser Asp Tyr Thr	610	615	620
Leu Gln Gly Asn Asp Gly Ser Val Met Lys Asp Gly Ile Ala Thr Gly	625	630	635
Gly Pro Asn Asn Asp Gly Gly Ile Leu Lys Gly Val Lys Leu Glu Tyr	645	650	655
Ile Gly Asn Lys Leu Tyr Val Arg Gly Leu Asn Leu Gly Glu Gly Gln	660	665	670
Lys Val Thr Leu Thr Tyr Asp Val Lys Leu Asp Asp Ser Phe Ile Ser	675	680	685
Asn Lys Phe Tyr Asp Thr Asn Gly Arg Thr Thr Leu Asn Pro Lys Ser	690	695	700
Glu Asp Pro Asn Thr Leu Arg Asp Phe Pro Ile Pro Lys Ile Arg Asp	705	710	715
Val Arg Glu Tyr Pro Thr Ile Thr Ile Lys Asn Glu Lys Lys Leu Gly	725	730	735
Glu Ile Glu Phe Ile Lys Val Asp Lys Asp Asn Asn Lys Leu Leu Leu	740	745	750
Lys Gly Ala Thr Phe Glu Leu Gln Glu Phe Asn Glu Asp Tyr Lys Leu	755	760	765
Tyr Leu Pro Ile Lys Asn Asn Asn Ser Lys Val Val Thr Gly Glu Asn	770	775	780
Gly Lys Ile Ser Tyr Lys Asp Leu Lys Asp Gly Lys Tyr Gln Leu Ile	785	790	795
Glu Ala Val Ser Pro Glu Asp Tyr Gln Lys Ile Thr Asn Lys Pro Ile	805	810	815
Leu Thr Phe Glu Val Val Lys Gly Ser Ile Lys Asn Ile Ile Ala Val	820	825	830
Asn Lys Gln Ile Ser Glu Tyr His Glu Glu Gly Asp Lys His Leu Ile	835	840	845
Thr Asn Thr His Ile Pro Pro Lys Gly Ile	850	855	